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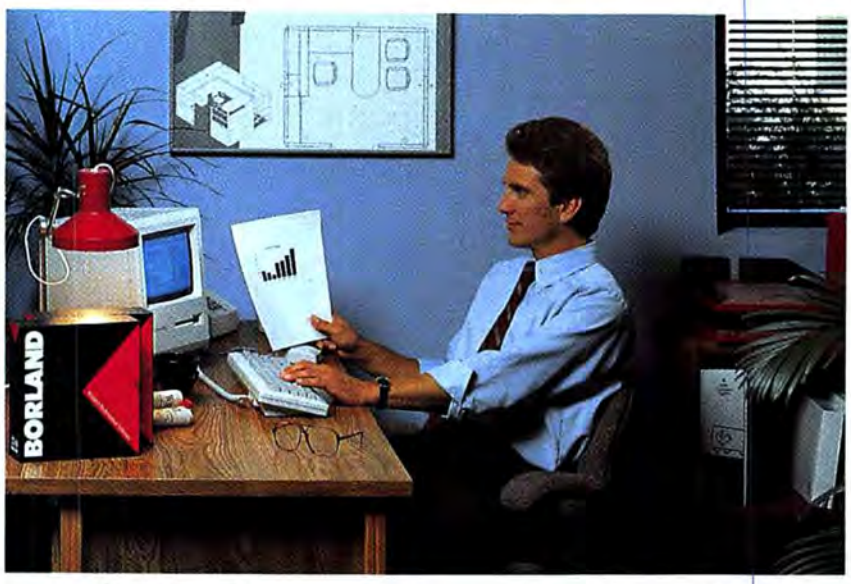
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Trapeze 2.0 Reaches New Heights

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And It Was Worth the Wait

DOUGLAS ADAMS GETS IT TOGETHER
And It's All Thanks to HyperCard

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useful information: Reflex Plus

Dā-ta-bāse:
"a collection of data organized especially for rapid search and retrieval."

Some people are intimidated by the mere mention of the word "database." Don't fall into the trap. In today's business world, power is measured by the ability to retrieve, manipulate and evaluate information. A database manager gives you that power.

THE FLAT FILE MODEL

The most elementary form of database manager is the flat file database manager. It allows you to manage lists—like inventories, basic mailing lists, payment records, prospect lists and so on, but its power is limited.

THE RELATIONAL MODEL

A relational database manager such as *Reflex Plus* can manage flat file databases. But its real power comes from the "relational" aspect. It allows you to create multiple flat files, then link and cross-reference records within these files. Oftentimes, the "relationship" established through linking is more important to a user than the original files. Up to now, the most popular relational databases have proven to be cumbersome, hard to learn and difficult to use.

HAVE IT YOUR WAY

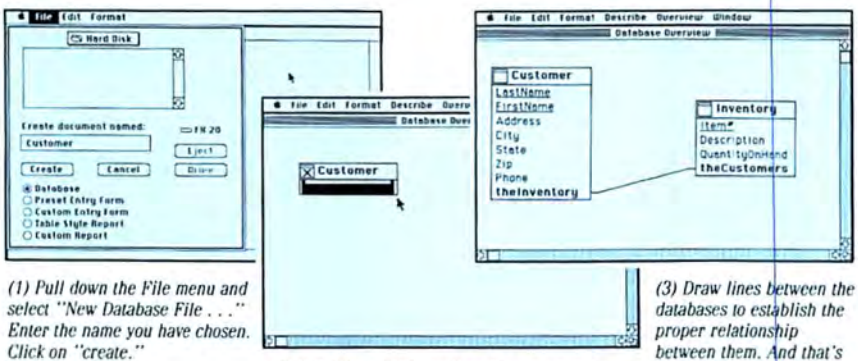
Reflex Plus gives you amazing flexibility in creating databases, accessing data and producing reports. You can organize and sort your data any way you want—on as many fields as you want. You can display it any way you want. You can add graphics, change fonts, add calculated fields—all according to your own design.

It crunches numbers like a spreadsheet—with 49 arithmetic, text and statistical functions built in. Which means that it's an especially effective productivity tool on your Macintosh.

Reflex Plus gives you the opportunity to make sense out of all that data. *Reflex Plus* turns disorganized data into useful information, resulting in perceptive decisions.

Best of all, *Reflex Plus* is only $279.00 and it comes from Borland.

HERE'S HOW IT WORKS (It's as simple as drawing a box.)



(1) Pull down the File menu and select "New Database File . . ." Enter the name you have chosen. Click on "create."

(2) Voila! Your database is on the screen and waiting for you to enter fields.

(3) Draw lines between the databases to establish the proper relationship between them. And that's it! You're now ready to enter your data.



and Technical Superiority . . .

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HIGH-POWERED FEATURES THAT MAKE REFLEX PLUS EASY TO USE

- ☑ Any number of entry forms for the same database
- ☑ Entry for more than one database in a single entry form
- ☑ Your entry form can display one record at a time, or all records at once in a table-style view
- ☑ Calculated fields in entry forms
- ☑ An entirely new manual
- ☑ Display-only fields
- ☑ Default fields that are editable
- ☑ New functions like GROUPBY, which lets you easily show records grouped by values in common
- ☑ Unlimited font selection
- ☑ A selection of useful templates, including one to generate mailing labels on your ImageWriter™ or LaserWriter™
- ☑ Choice of record sizes—1000, 2000 or 4000 characters
- ☑ Many Command-key shortcuts
- ☑ "What you see is what you get" design for entry forms and reports
- ☑ Text, floating-point, number, integer, sequence number, date, time and logical data types
- ☑ Display formatting that includes dollar, scientific and percent for numbers
- ☑ Text that can be fixed or variable in height
- ☑ Automatic sorting by key fields
- ☑ Sorting on as many fields as you want, in any way you want
- ☑ Paste Choices, which allows you to create formulas with links, or paste files easily
- ☑ Disk-based, so the limit to your database size is your disk
- ☑ Compatible with all Macintosh computers with at least 512K of RAM



Turning disorganized data into

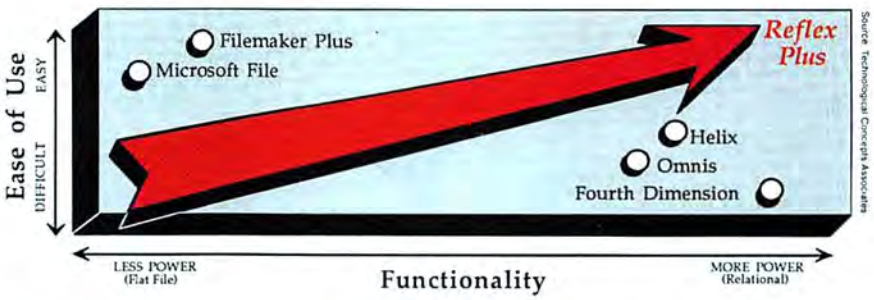
DATABASE SPECIFICATIONS

- ☑ Maximum single field length: 4072 bytes
- ☑ Maximum fields per record: 254
- ☑ Maximum record length: 4080 bytes
- ☑ Maximum records per file: limited only by disk capacity
- ☑ Maximum number of linked database files: 200
- ☑ Maximum number of open windows: 15
- ☑ Maximum number of files that can be used by a report: no limit

THE INFORMATION TREADMILL

Dealing with data is an inescapable reality of modern living—at home and on the job. Especially on the job. Most of it is pertinent. Much of it is valuable. And almost all of it would make our lives more productive—if we could just figure out how to make it work for us without a staff of experts inputting, outputting and making all the right connections.

DATABASE MANAGERS



Prior to Reflex Plus, there were flat-file database managers which were easy to use but limited in power. There were relational programs which were powerful, but difficult to learn and use. Now there is Reflex Plus. It spans all areas of functionality. It can be employed by a single user. It's easy to learn and simple to use.

For Power, Speed, Ease of Use

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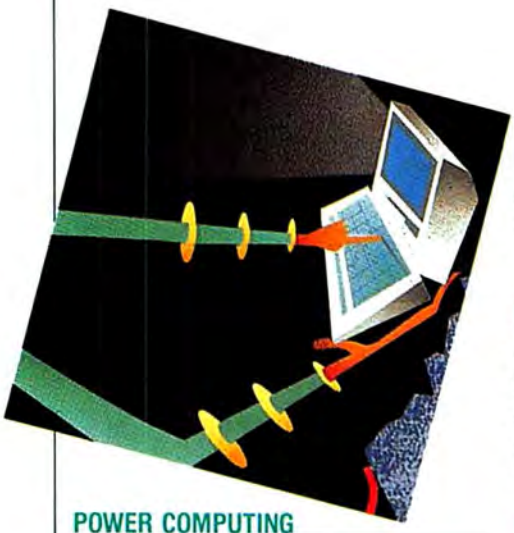
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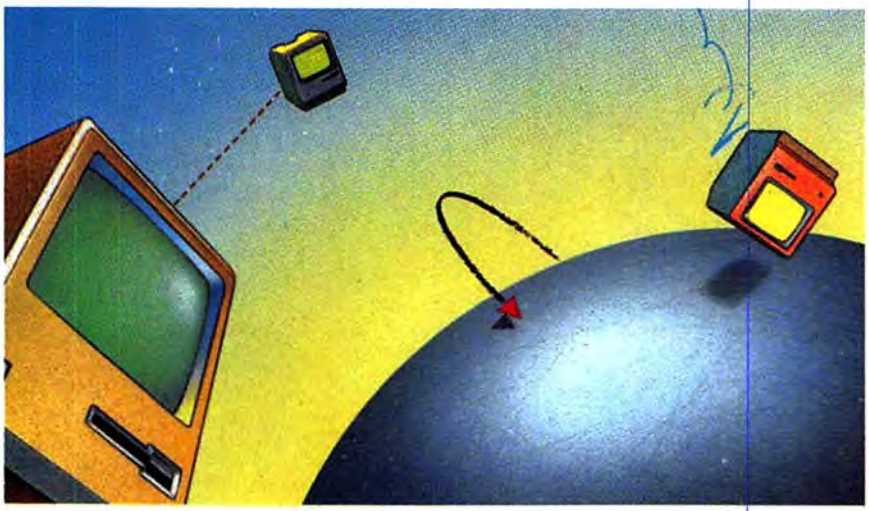
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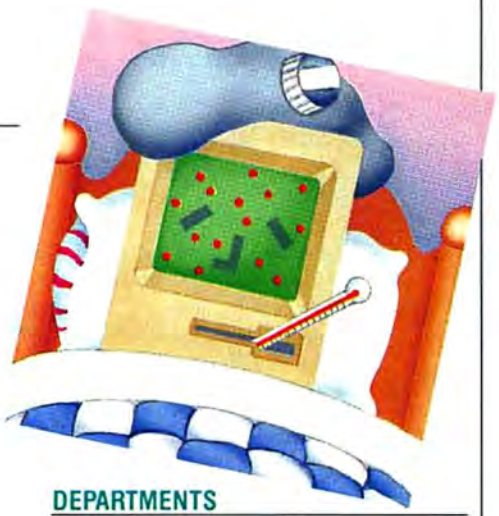
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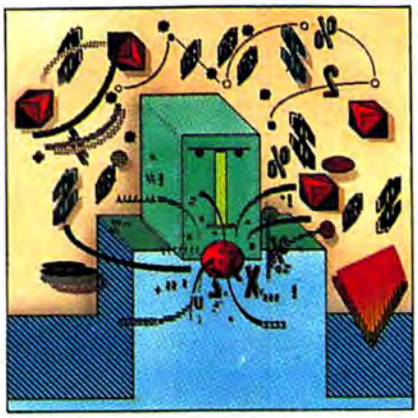
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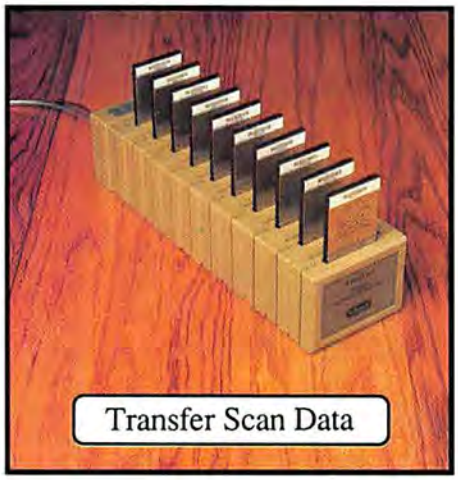
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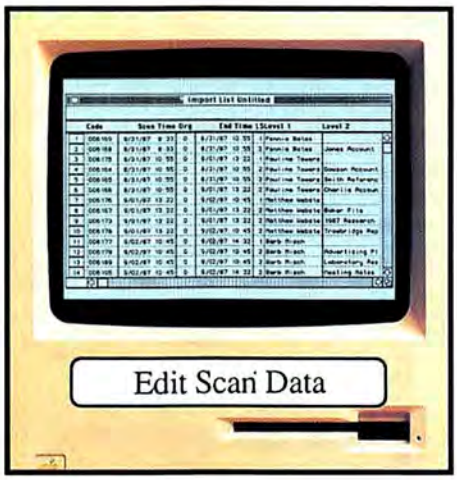
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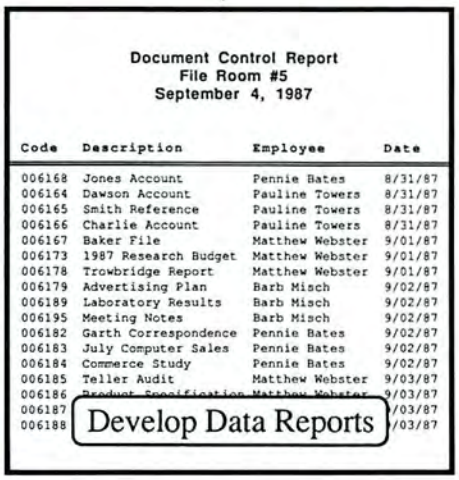












Document Control Report
File Room #5
September 4, 1987

Code	Description	Employee	Date
006168	Jones Account	Pennie Bates	8/31/87
006164	Dawson Account	Pauline Towers	8/31/87
006165	Smith Reference	Pauline Towers	8/31/87
006166	Charlie Account	Pauline Towers	8/31/87
006167	Baker File	Matthew Webster	9/01/87
006173	1987 Research Budget	Matthew Webster	9/01/87
006178	Trowbridge Report	Matthew Webster	9/01/87
006179	Advertising Plan	Barb Misch	9/02/87
006189	Laboratory Results	Barb Misch	9/02/87
006195	Meeting Notes	Barb Misch	9/02/87
006182	Garth Correspondence	Pennie Bates	9/02/87
006183	July Computer Sales	Pennie Bates	9/02/87
006184	Commerce Study	Pennie Bates	9/02/87
006185	Teller Audit	Matthew Webster	9/03/87
006186	Product Specification	Matthew Webster	9/03/87
006187			/03/87
006188			/03/87

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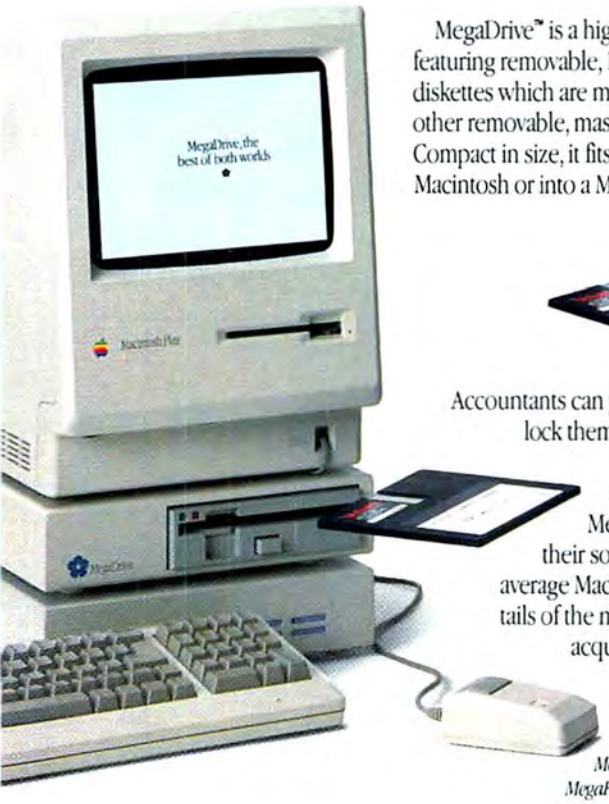
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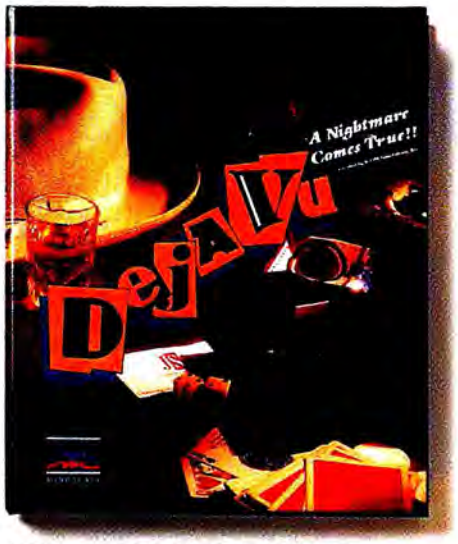
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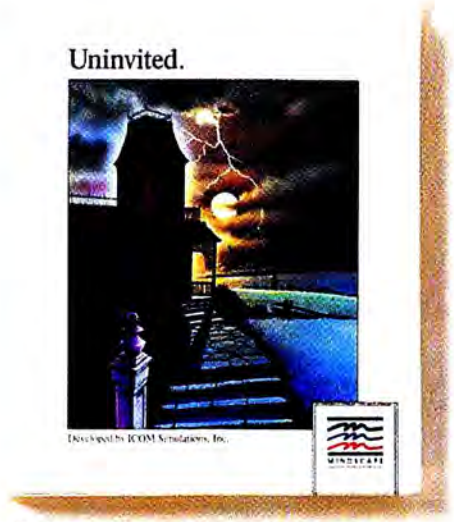
The Macintosh Boundary from **Doug Clapp. John Dvorak** on the state of the Mac. **Neil Shapiro's** Editor at Large. **Robert Wiggins'** Pinstripe Mac. **Steven Bobker's** Editorial Privilege. **Dan Cochran** with Answers from the Mac Team. Three pages of hints and tips. Over 250 **MiniFinders.** An expanded **Quick Click** section, now including hardware. More **Cauzin Softstrips.**

MacUser
THE MACINTOSH™ RESOURCE

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Precision	**200 CPI**	70 CPI	90 CPI
Digital Accuracy	**Yes**	Yes	No
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Shift Lock Key	**Yes**	No	No
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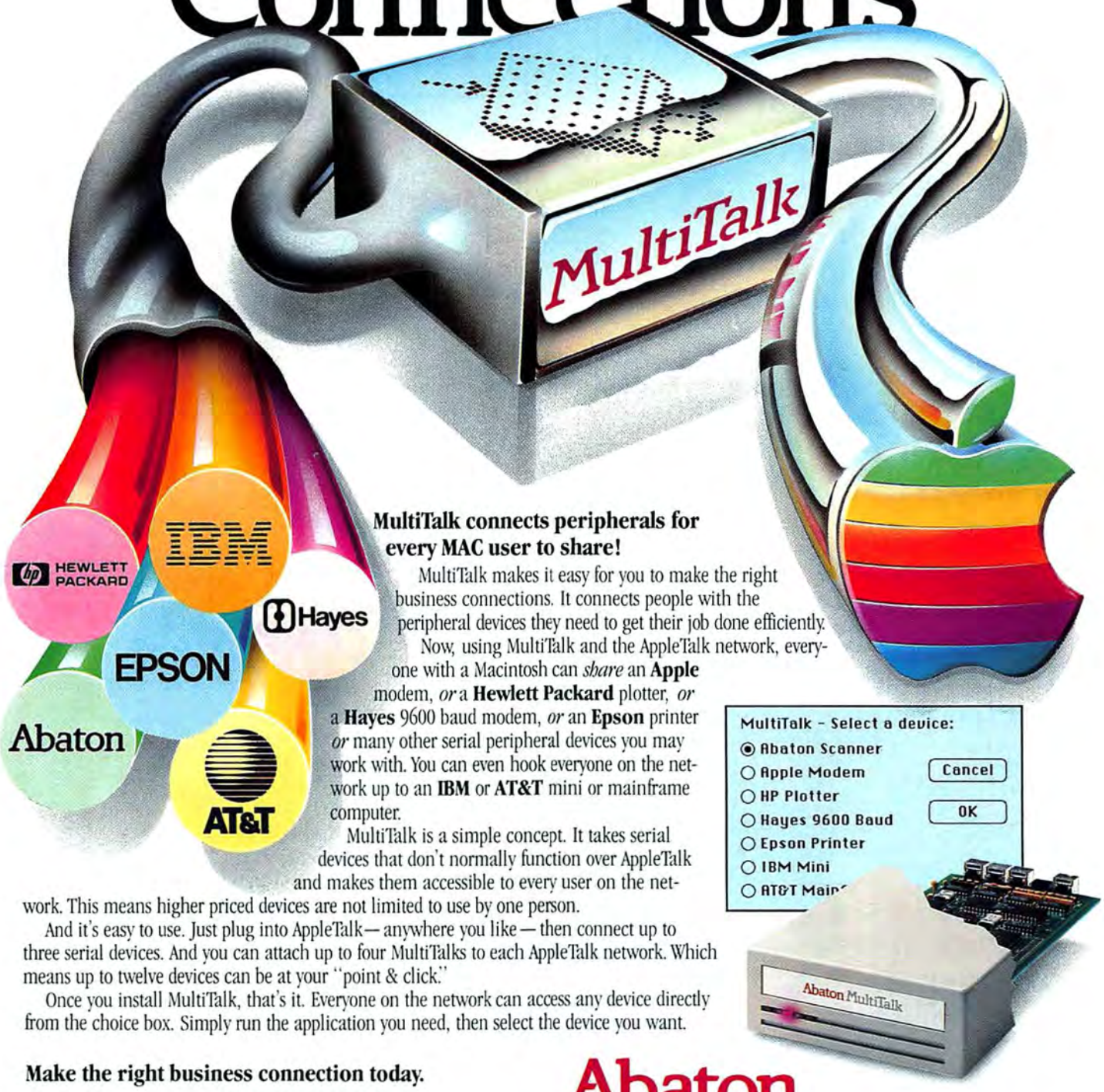


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Make The Right Business Connections



MultiTalk connects peripherals for every MAC user to share!

MultiTalk makes it easy for you to make the right business connections. It connects people with the peripheral devices they need to get their job done efficiently.

Now, using MultiTalk and the AppleTalk network, everyone with a Macintosh can *share* an **Apple** modem, *or* a **Hewlett Packard** plotter, *or* a **Hayes** 9600 baud modem, *or* an **Epson** printer *or* many other serial peripheral devices you may work with. You can even hook everyone on the network up to an **IBM** or **AT&T** mini or mainframe computer.

MultiTalk is a simple concept. It takes serial devices that don't normally function over AppleTalk and makes them accessible to every user on the network. This means higher priced devices are not limited to use by one person.

And it's easy to use. Just plug into AppleTalk—anywhere you like—then connect up to three serial devices. And you can attach up to four MultiTalks to each AppleTalk network. Which means up to twelve devices can be at your "point & click."

Once you install MultiTalk, that's it. Everyone on the network can access any device directly from the choice box. Simply run the application you need, then select the device you want.

Make the right business connection today.

Visit your local authorized Apple dealer or call 1-800-444-5321 for the MultiTalk dealer nearest you.

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Nothing gets the jobs done

Some people never know where their next job's coming from. That's why there's Microsoft® Works, the winner of five major awards—including Macworld's 1987 and MacUser's 1986 *Integrated Product of the Year* awards.

Microsoft Works is a one-disk software program that gracefully integrates:

Word processing, for writing memos, reports, presentations.

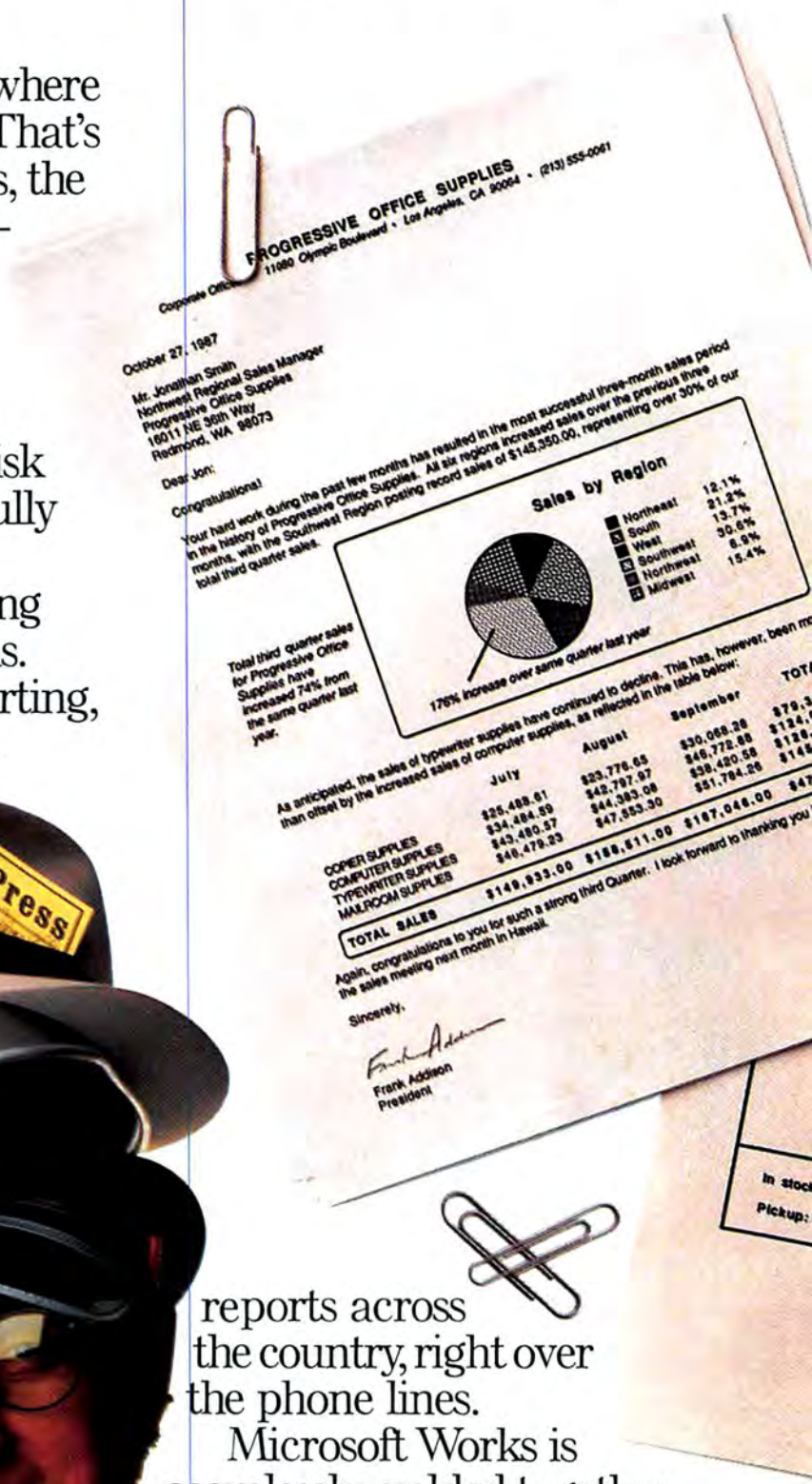
A database tool with reporting, to keep track of clients, jobs, vendors.

A spreadsheet with charting, to compute, analyze, interpret, and then graph anything to do with finance or numbers.

Finally, a communications tool which lets you get stock quotes, make travel reservations, do research, and send reports across the country, right over the phone lines.

Microsoft Works is seamlessly melded together. You can have all four tools on screen at once. Jump instantly




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October 27, 1987

Mr. Jonathan Smith
Northwest Regional Sales Manager
Progressive Office Supplies
16011 NE 36th Way
Redmond, WA 98073

Dear Jon:

Congratulations!

Your hard work during the past few months has resulted in the most successful three-month sales period in the history of Progressive Office Supplies. All six regions increased sales over the previous three months, with the Southwest Region posting record sales of $145,550.00, representing over 30% of our total third quarter sales.

Sales by Region

Northeast 12.1%
South 21.2%
West 13.7%
Southwest 30.6%
Northwest 6.9%
Midwest 15.4%

Total third quarter sales for Progressive Office Supplies have increased 74% from the same quarter last year.

175% increase over same quarter last year

As anticipated, the sales of typewriter supplies have continued to decline. This has, however, been more than offset by the increased sales of computer supplies, as reflected in the table below:

	July	August	September	TOTA
COPIER SUPPLIES	$25,488.61	$23,776.65	$30,068.28	$79,3
COMPUTER SUPPLIES	$34,484.59	$42,797.97	$46,772.88	$124,0
TYPEWRITER SUPPLIES	$43,480.57	$44,383.08	$39,420.58	$126,2
MAILROOM SUPPLIES	$46,479.23	$47,553.30	$51,784.26	$146,0
TOTAL SALES	$149,933.00	$158,511.00	$167,046.00	$47

Again, congratulations to you for such a strong third Quarter. I look forward to thanking you at the sales meeting next month in Hawaii.

Sincerely,

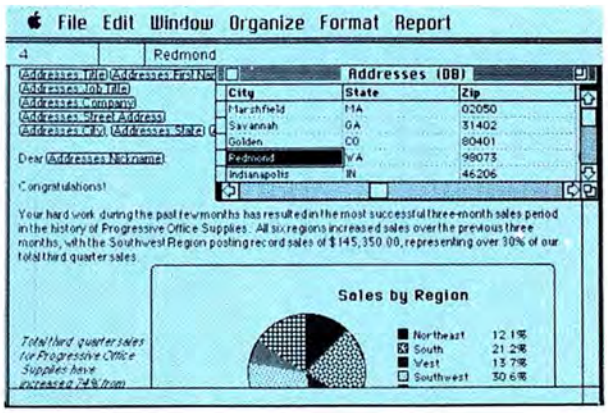
Frank Addison
President

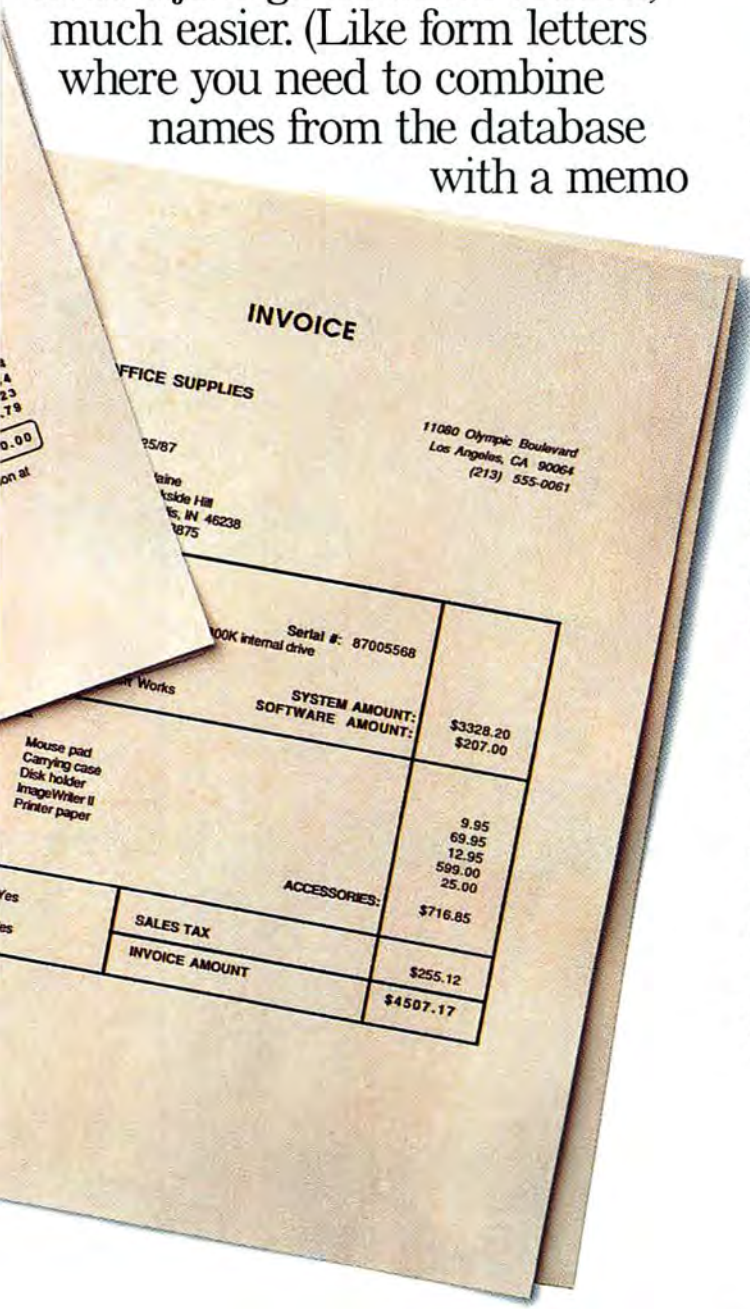
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Pickup:

like Microsoft Works.

from one to another. And later combine work done in each part of the program on a single printed page.

This easy exchange of data makes jobs go faster and much, much easier. (Like form letters where you need to combine names from the database with a memo written in the word processor.)





Learning Microsoft Works is a snap. It starts with a painless, step-by-step, computer-based training program. Before you know it, you know it.

All in all, Microsoft Works is a superb solution for day to day, get-it-done problems—an inspiring display of convenience, efficiency, and utility.

And of course, it's a product of Microsoft, the preeminent developer of programs for the Macintosh.™

If you're in a business that won't let you stick to one thing, check out Microsoft Works—the program that can change jobs as fast as you do.

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It's ironic. These days, modems bring the world to you at the speed of light. But for all their awesome speed and power, these high-performance machines just sit there on your desk like a low-tech toaster.

But now, we're introducing the Migent Pocket Modem. It's 100% Hayes-compatible, and it runs at both 300 and 1200 bps. It has a full set of Hayes AT commands. A 28-character non-volatile memory. Remote ring and tone sensing. Busy and dial tone monitoring. And even dual phone jacks.

But that's where all similarities end. The whole modem is smaller than a 3" x 5" card and works on a 9 volt battery or AC power. So you can put it in your shirt pocket or briefcase, and take it home, on the road, or anywhere else you need your Macintosh.

And unlike some modems, the Migent Pocket Modem is a complete communications solution. It contains everything you'll need to get started, including Macintosh cables and Borland's MacTerm software. It even has a 5 year limited warranty.

The Migent Pocket Modem. If you'd like to know more, call **800-633-3444** and ask for Alexis. We'll send you full information and the name of your nearest dealer. But in the meantime, you may be wondering why this modem isn't beige like the rest. Because we think it's about time a high-powered information machine looked like one.

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THE MIGENT POCKET MODEM.™
A STATE-OF-THE-ART INFORMATION MACHINE THAT LOOKS LIKE ONE.



by Steven Bobker

On the Way to Market

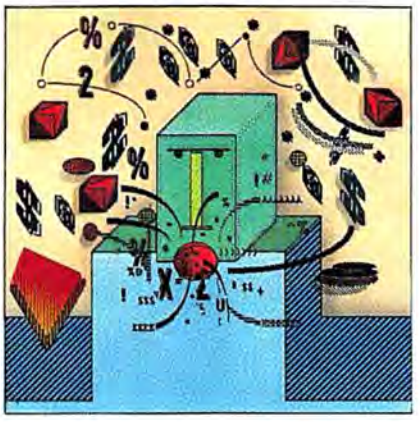
What exactly is *HyperCard*? No, no, not what the program does. You can find that out by reading any (or all) of the many articles now appearing in *MacUser* and everywhere else. Or you can put a weekend (or a week — it depends on your reading speed) aside and read Danny Goodman's absolutely wonderful *The Complete HyperCard Handbook*. Or you can try out the program itself. You'll soon have at least some idea what the program does, and hopefully, what it can do for you. My question is, well, more semantic.

Apple has decided to call *HyperCard* "system software." That must mean it's like the *System* and the *Finder*. It must primarily work on or through or to help other programs. Sure. And what it's not is a word processor, paint program, or data manager program. Because Apple can no longer sell those products to you. Products in those categories must now be sold by Claris, the recent spinoff from Apple. Apple can't sell you a program that does what most reviewers and users have found *HyperCard* eminently capable of. Unless, of course, it's not application software, but system software. And so I suspect that's why *HyperCard* is officially — if not quite actually — system software.

As a check of what reality is saying, rather than what Apple is saying, check out the ads your local Apple dealers are running in newspapers. Are any of them offering "free *HyperCard* system software?" I don't think you'll see the words *HyperCard* and system software linked together in any ad. Every ad I've seen (and I've made it a point to look for them) calls *HyperCard* a "data base" or "information management software." Sounds awfully application-like to me.

That leads to my next question. Why is Apple so eager to give *HyperCard* away? Is it merely to keep Bill Atkinson from leaving? Possibly. But Apple is a big American company, and while it is rather different in cultural outlook from, say, GM, it is still a large corporation in the 1980s. It is giving *HyperCard* away because in its corporate opinion giving *HyperCard* away (and changing all the existing software and hardware rules by this simple act) will increase its profits, probably by a large amount. For one thing, the program loves memory. The 1-megabyte bottom limit is really that, especially on a Mac II. To really get the most out of *HyperCard* while avoiding its really obnoxious memory management, you need several megabytes of RAM. And one of the best moneymakers around right now is external memory. Ask your dealer what the margins on SIMMs are, especially as the cost price keeps dropping.

All well and good. I don't expect corporations (not even Ziff-Davis, who employs me) to sacrifice even a little bit of perceived profit just so they can do good. If profit and goodness coincide, that's all to everyone's benefit, but I'm not sure that's the case with *HyperCard*. A lot of people are going to be hurt. I'm not talking about the developers whose products will be wiped by *HyperCard*. As Doug Clapp pointed out last month, that's capitalism in action. I'm talking about the people who only get the benefit of microcomputers, because the Mac is (was) so easy to use and is (was) so approachable. The consistent and simple user interface allows (allowed) these users access to many programs that do many different things. Now we'll start to see lots of new *HyperCard* programs or stacks. And an awful lot of them will have an interface that in no way resembles what you think of as the Mac interface. Part of the reason for that is that *HyperCard* doesn't have a real Mac interface of its own. It fakes it well in places, but it's its own creature, much as Atkinson's last masterpiece, *MacPaint*, was.



I don't think you'll see the words HyperCard and system software linked together in any ad. Every ad I've seen calls HyperCard a "data base" or "information management software."

The other part of the reason is that its nature and its literature encourage users to modify the interface to whatever they want it to be. And gives them the tools to do so. That's fine, indeed, praiseworthy, if you are to be the only user of your creation. But if others are also to use it, or worse, you hope to sell it to the mass of Mac-interface ready buyers in the marketplace, you're doing them and yourself a serious disservice. For unless your stackware product is superior to others that are not based on *HyperCard* — and given *HyperCard*'s interpreted scripts and limitations, that's not likely — you will be holding back progress and productivity. Now those weren't your aims, but the results will be the same as if they were.

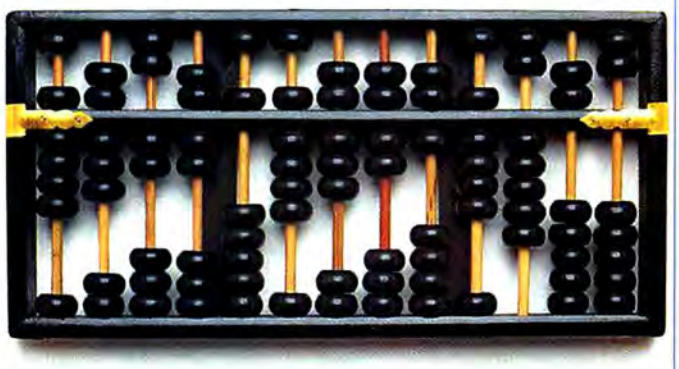
The real loser could well be Macintosh. I believe the recent large and impressive gains made by the Mac in corporate America are a direct result of the Mac interface. That interface has allowed the nonusers to become productive Mac users in a tenth (or less) of the time it was taking them to become IBM PC users.

Corporations notice things like that. The cost of replacing and training employees has been steadily rising and the current industry averages boggle my mind. Training hours are very expensive (both in terms of people needed to do the training and facilities that are not being used for productive ends), and the people being trained are dead weight until the training is complete. The time it takes to teach the average employee (one with no previous computer experience) how to be marginally productive with an IBM PC is 100 to 120 hours. The same employee reaches the same level of competence on a Mac in about 10 hours. That translates into lots of savings if you use Macs.

Then there's the matter of support. IBM PCs require large, expensive and always busy corporate support groups. New programs (and often, new versions of old programs) require complex installation and retraining. To paraphrase what electrical devices are wont to proclaim: "There are no user-serviceable, in-

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ACCOUNTANT, INC. is complete, affordable, and yes, easy to use. It's the professional accounting package that's known for quick start-up and immediate results: providing up-to-the-minute analysis of your finances.
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If profit and goodness coincide, that's all to everyone's benefit, but I'm not sure that's the case with HyperCard.

stallable, or whatever parts in this program." That's not true of the Mac. Macs are putting PC support groups on the endangered species list wherever they are moving in in quantity. They're not perfect (yet), but they require far fewer people doing far less work for the same number of people and programs supported.

Well, *HyperCard* (and to some smaller extent, the Mac II) seem to be doing all they can to change that. When every program looks different, and worse, works differently, there's no longer the huge edge in training and support costs, and the name IBM is going to be far more acceptable in corporate circles than Apple for a long time to come. The Mac can't simply be better; it has to be much better. And *HyperCard* is going to cut into the edge it now enjoys.

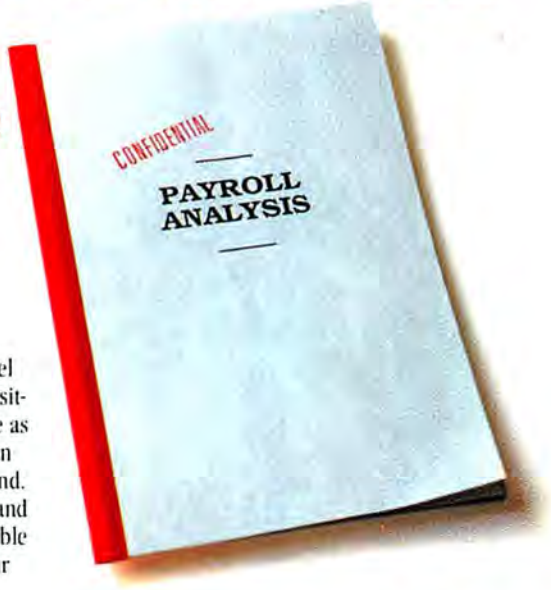
So what Apple and Atkinson have done is forced what is essentially a demo version of a potentially great program on the market as a standard. Give a program away and it wins by default. There's no point in judging it by normal standards because everyone has it. It's there, the user base doesn't have to be built up by providing quality. It just suddenly exists. And in the end we all pay.

The potential of *HyperCard* is enormous. It can be every bit as revolutionary as others in this issue will tell you it already is. But it has to overcome some serious hurdles. It has to behave better when it runs out of memory. The word "failsoft" is clearly not in its vocabulary. It needs to print better and more intelligently, since we still do not and won't for a long time, live by computer screen alone. It must learn to support gray scales and color, because that's the way the whole industry, not just the Mac, is moving. Text handling needs improvement (that's nearly a generic comment about any Mac application). And Apple needs to recognize it for the application it is and sell it and treat it accordingly.

Bill Atkinson has been quoted as saying he plans to spend the next 3 years working on and improving *HyperCard*. I hope so. And I'll put my money on version 3.0.

Would you leave this document out on your desk?

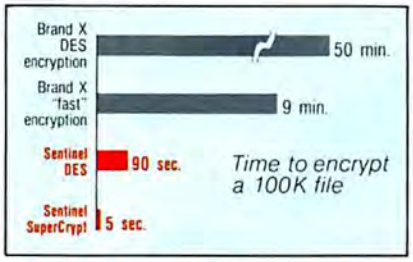
Then why leave it unprotected on your disk?



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by Neil L. Shapiro

Comes the Revolution

"What's all the hype about *HyperCard?*" I was asked during an online discussion where I was extolling the benefits of Apple's newest product. Good question, I thought. Looking over all that I had said, it did appear that I was at least being starry-eyed. Had I somehow lost my objectivity?

Well, I've been using *HyperCard* now for about 2 weeks and I very much believe that it is the world's most exciting computer program both from a personal viewpoint and from that of an observer of the Macintosh scene. *HyperCard* is to the Macintosh what the Macintosh was to personal computing in 1984. It's more than just a breakthrough. It's a revolution.

Sure there are things to nitpick in the first version. There are even things one can say against how it is being marketed (as I did last month). But there's one thing that stands out.

HyperCard is a hyperbolic program that one does not have to be hypermetropic about to see that it can bring almost hyperphysical, hyperthermal relief to the hyperborean realms of hypertensive programming. And, I don't mean this at all hypothetically.

FAILURES OF YOUTH

Back in 1978 when I bought my first Apple II, I had visions of all the wonderful programs that I would be able to design. After all, I knew BASIC from having edited a book on the subject and the Apple II had BASIC in ROM.

Well, I worked away at it. What I didn't know I learned from examining the programs of other people. Shortly I was into some pretty esoteric areas. I was having to learn about "shape tables" and "hi-res pages" and soon it became apparent that learning how to really program that machine was going to be more than I had bargained for.

Well, I kept plugging away. I even sold a game commercially. But then I noticed that many other games were doing things with animation and other techniques that I just couldn't touch.

Programmers were going on beyond BASIC into such things as 6502 assembly language and then later into C and other languages. So I bought a few books on 6502 programming. Wow. Bad news.

It wasn't (I hope) that I was too stupid to learn how to program. It was simply that I had many different responsibilities all demanding a portion of my time. If I could have had days with 36 hours apiece, I might have been able to have picked up on assembly language. But no, that was not to be.

THE DEPRESSING MAC

Then came 1984 and the Macintosh.

I've recounted before some of my own first experiences with the Macintosh and how it was love at first sight.

But one thing I knew as soon as I got my first copies of *Inside Macintosh* in three huge loose-leaf binders: It was not going to be a machine that I would ever hope to program upon. Not unless something drastic happened. But I had to try.

First I looked at the BASIC that was then available. Sure, it was a pretty good version of BASIC and I was able to create a number of interesting effects. But anything at the level of a commercial product was pretty much a fantasy.

All of those beautiful routines tucked away in the Mac's Toolbox ROM might as well have been locked away in a safe somewhere at the bottom of Fort Knox. BASIC could have reached them if I had known what I was doing, but for me to have known what I was doing would have meant so much study that little things like feeding my family would have had to go by the wayside. And, no matter what, those early BASICs were never going to run the machine at full speed.

Then I picked up a few books on Pascal. All of my friends at Apple and in online groups assured me that anyone could learn Pascal. Even me. So I tried it. I studied good books by established and respected authors.

Forget it. I hit the same brick wall. It was time-consuming enough to learn a new computer language. To learn a new language and to also have to learn *Inside Macintosh* at the same time was a killing combination.

As time progressed I experimented with some of the new compiled BASICs that are available on the Mac. One became a favorite and I began to work extensively with it in what spare time I had.

I even started work on a new game. I plugged away working an hour here and an hour there. I was closer this time. I could almost taste it.

But it was not to be. The game I had in mind used extensive graphics (although I was smart enough to stay away from actual animation) and I had even arranged with a friend (a professional illustrator) to have the artwork drawn in *MacPaint.*

But then it came time to learn how to do such things as resource files and regions with handles and more. You get the idea. Development stalled as I once again ran out of time that I could devote to educating myself in programming.

And I wasn't the only one who had such problems. I was told a possibly apocryphal story by an Apple employee about John Sculley (Apple's CEO). The person couldn't and wouldn't tell me very much at all, just that there was a new project going on at Apple, a "modular programming language."

Supposedly Sculley had been shown a prototype of the project and he had said something similar to, "At last I can learn how to program." According to my informant he had had "real tears" in his eyes as he said that.

Well, I don't know if the story's true. Because if it's true then John Sculley is smiling broadly today.

A BETTER WORLD

With the release of *HyperCard,* Apple has succeeded in doing something which I would have said, just a year ago, was impossible. They have made programming on the Macintosh *at a commercial level* not only easy but intuitive.

People like Bill Atkinson and Dan Winkler and all the others on the *HyperCard* team have changed forever the way that the world needs to think about programming. They have, in fact, done away with the classic idea of programming and have invented something new.

I just moved 10 months of development work that was already doomed to fail in another language over to *HyperCard.* I did it in one night. And I wasn't programming. I was creating.

You see, with *HyperCard* you don't have to worry about such things as resources and regions and handles and all of the gigantic, towering collection of ROM ins and outs that make up *Inside Macintosh. HyperCard* worries about all of that for you.



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Ho, ho, ho! Yes, it's Christmas time again! Time to think about what to give your friends and family. The old bottle of scotch is out—they've all switched to wine coolers. Fudge is no good either—they're all on the rotation diet. No, it's got to be something really different...

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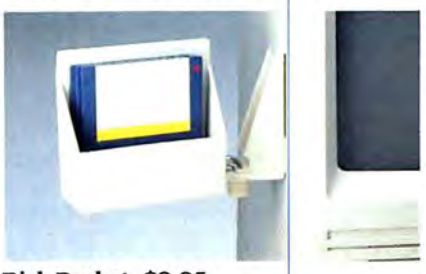
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By now I am sure that everyone reading this has already seen *HyperCard* in action and has read numerous reviews of it. So it would be repetitive to try to explain in detail how *HyperCard* works in this limited space I have left here. Rather, I think it is important that we realize that the way *HyperCard* works lets us, the proverbial end users, learn in the way humans learn best. We can learn by doing. And by watching others.

Learning by doing is the first step. Picking up a button and moving it, resizing it, highlighting it without ever having to think about the complex actions going on; hiding buttons behind graphics; designing fields bordered by beautiful designs; making one bit of information automatically call another onto the screen — all of this and much more can be learned in the first hour of "play." Play with *HyperCard* for an hour and it's yours forever.

Many people will stop there. They will be able to design all sorts of data bases, *Finder* replacements and much more without any deeper understanding. These people I refer to as *HyperCard* "designers."

The next step is to learn *HyperTalk*. I was lucky in that I had access right away to Danny Goodman's masterpiece of a book, *The Complete HyperCard Handbook* (from Bantam).

While most people who use *HyperCard* will never need the *HyperTalk* language, an understanding of it can make you into a *HyperCard* "creator."

One of the most wonderful aspects of *HyperCard* is that it is quite simple to investigate what others have done and to apply the same techniques yourself. Back at the beginning of this article I mentioned that, in the days of the Apple II, one of the ways people learned BASIC was exchanging programs.

Well, we all know that the Macintosh is justifiably famous for the Community of Sharing in which we all enjoy so many freeware, shareware, and public-domain programs. But in the past you could only use such programs and usually not learn much from them.

With *HyperCard* stacks, you will be able to learn from such stacks how to better make your own stacks. I suspect that as more and more people become *HyperCard* creators we will see things done with *HyperCard* that even Bill Atkinson never imagined as possible.

Sit back. Think of all that you ever wanted to do with a computer, with the Macintosh. Get ready, get *HyperCard*, get creative!

Hey, Mr. Sculley, want to trade stacks?

The Picture

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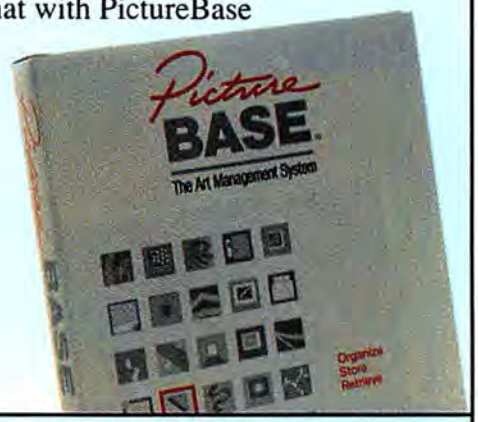
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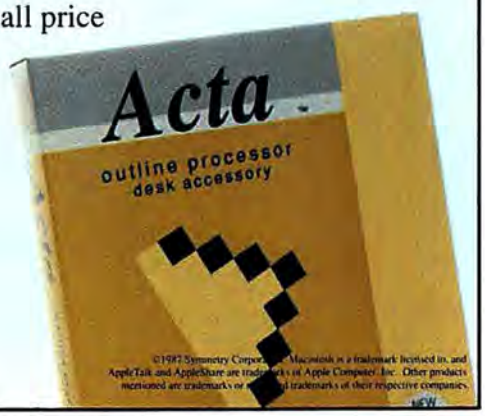
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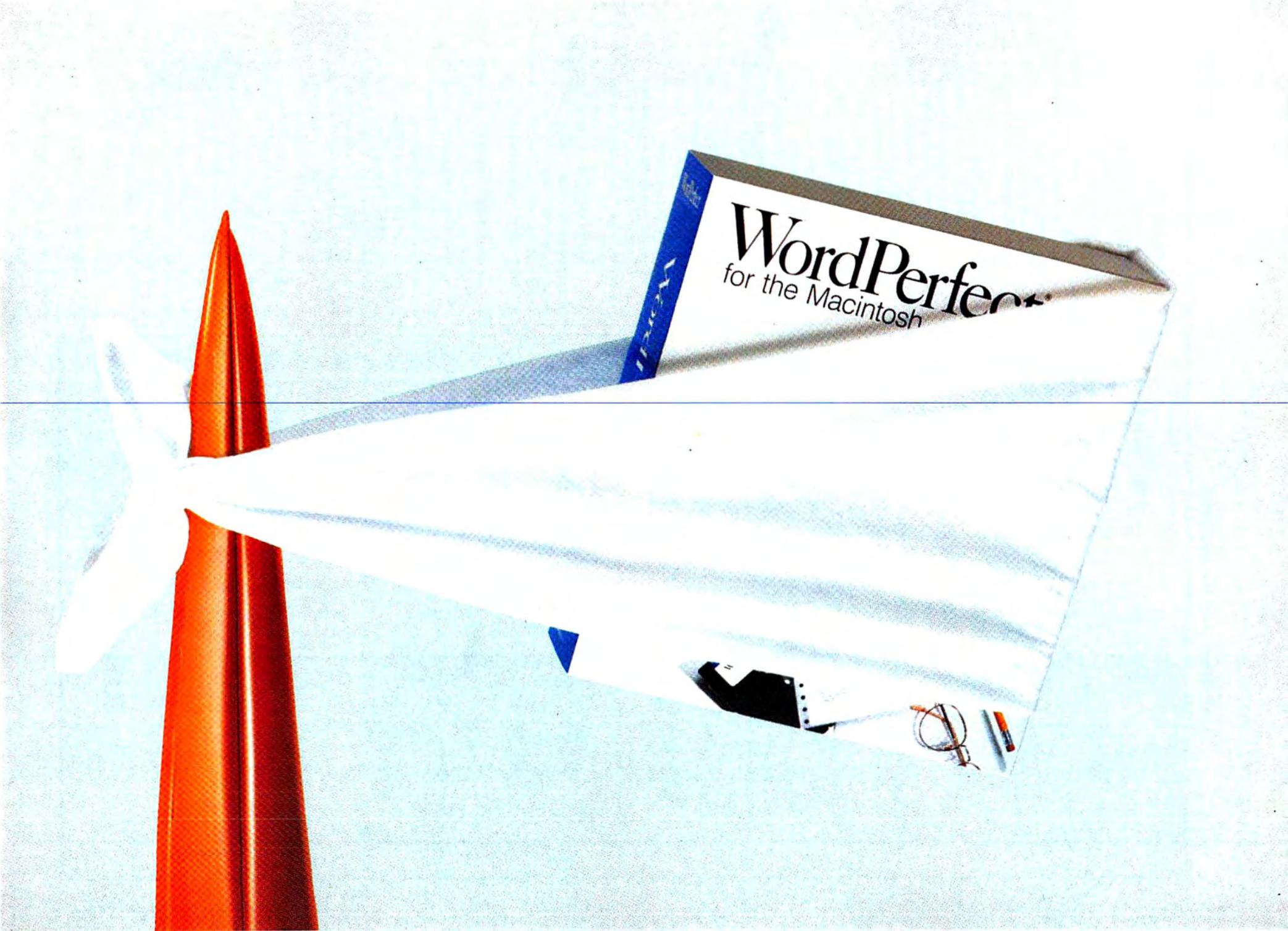
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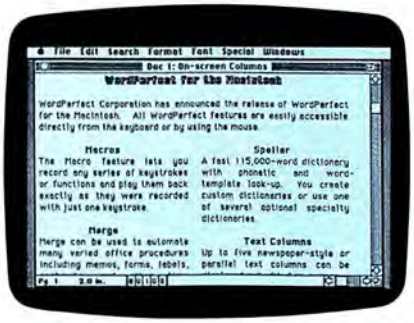
WordPerfect's new arrival that wasn't born yesterday.

WordPerfect for the Macintosh has just arrived, and with it comes a whole new era in word processing for the Mac.

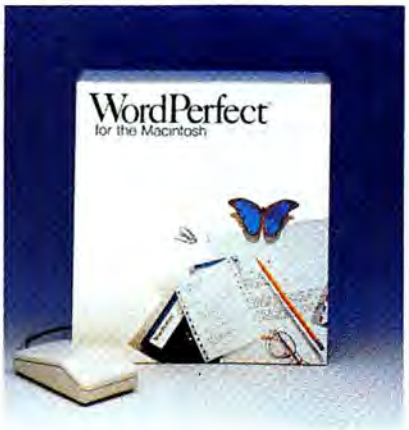
Yes, it was a long time coming. But a sophisticated word processor



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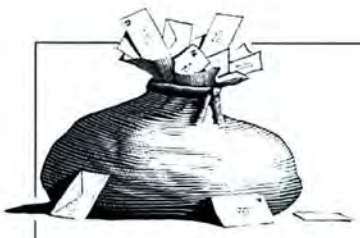
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CHARACTER ASSASSINATION

In Doug Clapp's September 1987 column titled "Scan Scam Canned," he refers to Abaton's scanner. Abaton has a reputation for offering reliable, high-quality products. Those that do not reach our high standards are simply not marketed. We discontinued our Macintosh OCR software program precisely because it did not reach those standards. This is the very product Mr. Clapp refers to in his article. He leaves no doubt in the reader's mind as to his opinion with explicit and direct remarks such as, "cumbersome and ugly."

Lead time for advertising takes weeks. We assumed wrongly that our product would match our advertising timeframe. Mr. Clapp is essentially throwing the baby out with the bath water by implying that our scanner is not up to quality standards. All scanners are driven by software. Admittedly our OCR software for the Macintosh was less than expected. However, our software for running OCR on MS DOS is exceptional. Let's keep in mind that we are using the same scanner, which, when coupled with MS DOS ACR (Abaton Character Reader) software, has the ability to recognize over 120 different fonts.

Sheryl Ross
DIRECTOR OF MARKETING
ABATON TECHNOLOGY CORP.

In Doug's defense, both he and a MacUser *editor called Abaton at the time the column manuscript arrived in our offices and asked about the ad. We were not told that the OCR software had been discontinued. Of course, this, too, may be due to lead time. Editorial lead time is roughly 2 months.*—LK

ADAMS' APPLE

I reckon it's OK for Douglas Adams to burn 1207 words in your magazine grumbling about one deficiency in Microsoft *Word* 3.0x. But I'd just as soon he'd used fewer words while still calling attention to oversights other than word counting in the supposedly feature-rich program.

For example, why doesn't *Word* have a bookmark? *Word* lets you bounce to the point of your last transaction, but that's not always what I want. Some IBM word processors let you bounce to the point of your last transaction or to your specified marker.

David B. Long
LOS GATOS, CA

I seem to get the feeling that you may have missed the point of Douglas' piece: humor (or as he would have it, humour). It was not intended as a product review, just one user's experience with Word. *A famous user who writes funny.*—LK

REVERSED POLE

Just received your June '87 issue. What can I say, as a Pole, about the screen in the Kinko's ad (page 23) for the American Courseware. As anyone can check in an encyclopedia, free Poland was born in 1918. The screen, which should supposedly teach history in 1919, shows the borders as they were before the first World War. If American computer education is anything like Academic Courseware Exchange, then I'm sure your next generation will believe that Europe is an island in the Bering Sea. It makes me wonder.

Jakub Tatarkiewiez
WARSZAWA, POLAND



BELINDA MORRISSEY

THE TRANSFORMERS

I am a frequent traveler between Europe and the United States. When I purchased my Mac and ImageWriter II in Seattle, I was concerned about their compatibility with European electricity. Apple told me that the ImageWriter I would work with a voltage transformer, but not the ImageWriter II! Nevertheless, I took the Mac and printer to Europe with a small generator capable of producing the right electricity (110 volts/60 hertz).

Once in Europe, I contacted an Apple dealer (very friendly) who told me my ImageWriter II would work fine with a voltage transformer. It did and didn't need a generator (which was an expensive solution to the "problem"). Why did Apple tell me the ImageWriter II would not work in Europe?

Marc-Andre L'Huillier
SEATTLE, WA

P.S. This letter is hand-written because I left my printer in Geneva.

Apple says the ImageWriter II needs an international power supply that changes the 60 hertz American standard to Europe's 50 hertz and the voltage from 110 to 220. According to Apple your printer doesn't work!? As to your handwritten letter, you and any other readers can always send us letters on disk in MacWrite *format.*—BT

ARTIFICIAL INSANITY

Dvorak is only partly correct about the microcomputer men's club. It's not that the Boys don't relate to the Girls. They just don't relate very well to anything human. People are far more complex and bug-ridden and come with no documentation.

It's sort of a chicken-and-egg situation. Did they turn to computers because of chronic social ineptitude, or was it the years sequestered with computers that turned them into dorks?

Now that artificial intelligence is moving along fairly nicely, perhaps they'll put similar effort behind artificial social skills.

Alan Christensen
SAN FRANCISCO, CA

GROUNDS FOR DIVORCE

Damn them Apple folks for "upgrading" the *Finder* and *System.* Are they living in some sort of compatibility dreamland, or are they forcibly trying to eliminate any possibility of Mac-sharing?

I have already had enough trouble adapting my Mac to that of another with the same system in order to use their LaserWriter. Now that their Macs have changed to the new *System* I've already had things like disk errors, information that just doesn't come up, and changed formatting—especially in *MacDraw.*

It's already common knowledge that all sorts of weird things happen from one Mac to the next, even with the same *System* and *Finder.* And forget about 128K to 512K to 512KE to the Plus, as well as any non-Apple hardware, etc., etc., etc., which makes compatibility a nightmare anyway. So now Apple makes a bad situation worse just so we can all have bulging

trash cans and new message icons. It's enough to make me want to switch to IBM.

Well, almost...

KEVIN ANDERSON
PHOENIX, AZ

The compatibility problems you write about have not struck us with any regularity. Yes, some old programs that used programming shortcuts or did things Apple said not to no longer work. And, yes, Apple has changed (to their shame) some of the rules. But I can still read all the files I created back in 1984 on my 128K Mac under good old Finder *1.1g. As to your LaserWriter problem, all that the* System *demands is that everyone using the same LaserWriter also uses the same driver. It cares not what* System *or* Finder *is there. And since LaserWriter drivers have continually evolved for the better, you're best off using the most recent one.*

As for your frequent crashes, the Mac's ability to let you fool with the System *by adding fonts, DAs, and other goodies also lets you run the risk of corrupting your* System. *Some recent versions of* Font/DA Mover *have also been prone to doing sporadic damage. I'd start with a clean new* System *(from Apple System Tools disk) and add my fonts and DAs again (well, actually, I'd use* Suitcase *this time—see the November issue) using* Font/DA Mover *version 3.4 or higher. I think that will solve more than 99 percent of your problems.* — SB

THE RIGHT OPTION

Mr. Edward Cowan's letter "Betting On Options" in the September '87 issue pleaded for right-hand option keys. He might be pleased to try the Mac-101 keyboard from DataDesk International (7650 Haskel Ave., Van Nuys, CA 91406). It has both a right-hand option and command keys.

The Mac-101 keyboard is, in fact, an IBM PC AT keyboard clone that comes with software to enable the function keys. There is a reasonable amount of documentation, but no information on how to access the expanded functionality from a user-written application. I find the set-ups less flexible than I would like, and I have had some isolated instances of keyboard lockup. So I can't recommend it highly, but it is worth a look.

VANYA MATZEK
CUPERTINO, CA

A SHOW OF HANDS

Having just returned from the Macworld Expo in Boston, I had to write and say, "Thanks." Because I read *MacUser* I knew which booth I really wanted

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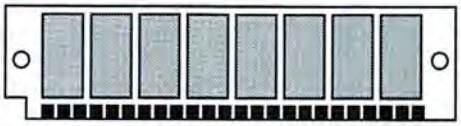


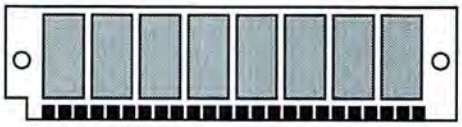
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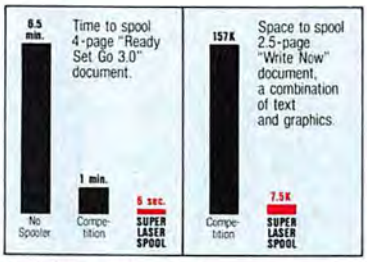
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to spend time at, and amid all of the hype of "show special" prices, I knew which prices were really bargains and which ones weren't. In fact, I saved enough money getting good bargains, that your magazine paid for itself for a couple more years.

DOUGLAS D. MARTIN
PLATTSBURGH, NY

We like to think of MacUser *as a bargain at twice the price. Thanks!*—LK

GRID AND BEAR IT

I must know! Has any human ever gotten past the Skull, (level 12) in *Gridwars?* If so, what comes next?

FRED SWEET
SAN DIEGO, CA

No human that we or Ann Arbor Softworks knows of has gotten past the Skull. We won't take the fun out of the game by telling you what happens. Keep trying, Fred.—BT

RETOOLING WORD TOOLS

I just purchased *Doug Clapp's Word Tools* and although I suspect a powerful program lurks somewhere beneath, at the moment I feel a bit burned. First *Word Tools* doesn't support *Word* 3.0. It won't even work with *Word* 3.0 files saved as ASCII text. It says that it's *Word* compatible on the box, but absolutely no mention is made about being incompatible with the latest version.

Gripe two—*Word Tools* can't handle text with graphics. Aegis sounded surprised to learn that someone actually used graphics with text. What's the Macintosh for anyway?

FRANK L. JAUBERT III
HOUSTON, TX

Aegis says an update will fix the Word *3.0 problem so that you don't have to convert files into* Word *1.0 and back again in order to use* Word Tools.—BT

To be really fair: Word Tools *is not* completely *incompatible with* Word 3.0. *It does the count OK; it just won't do anything else!*—LK

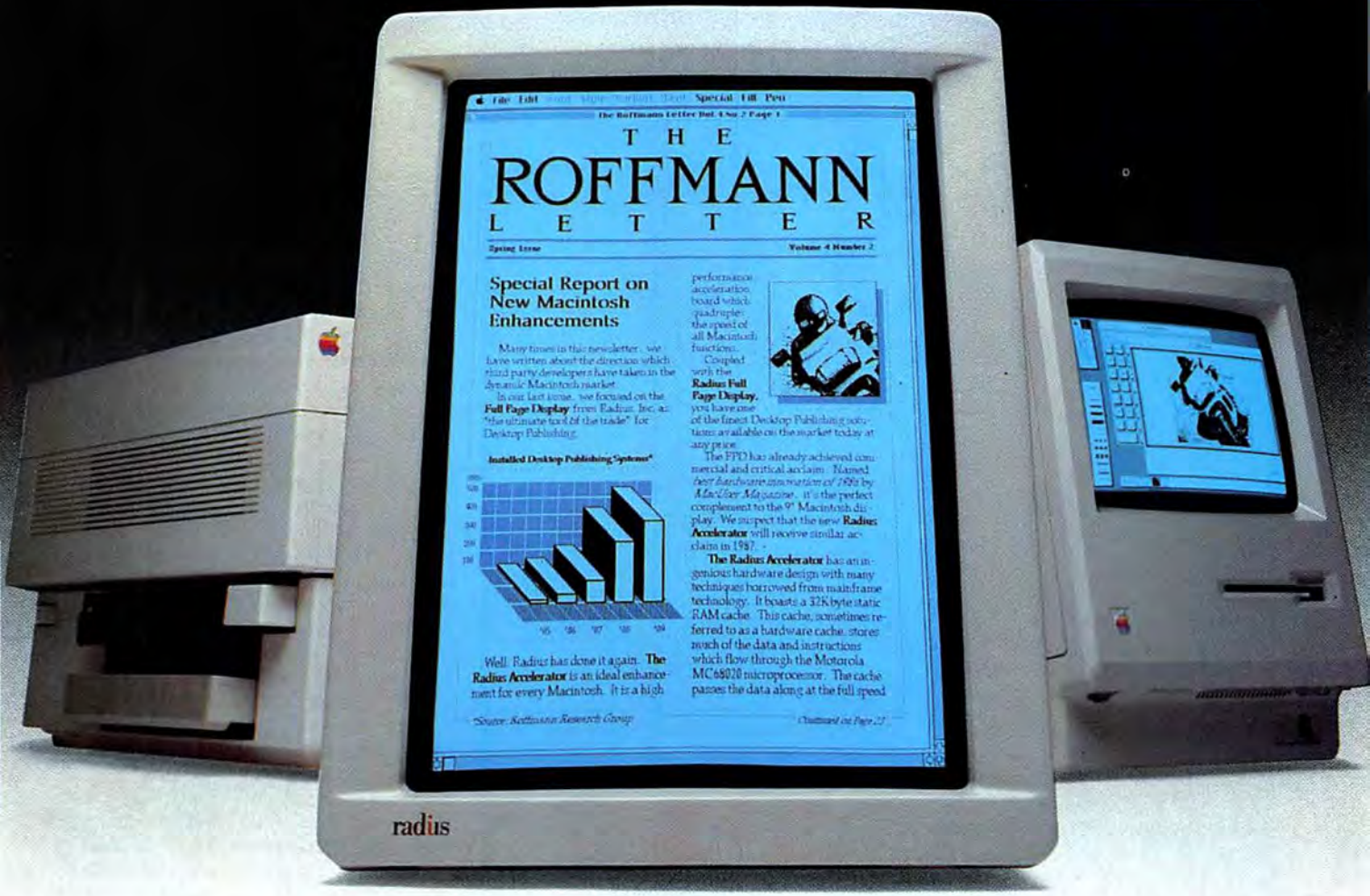
MAC DREAMS

Last night as I sat down at the computer, I saw that our Macintosh was sick. It had RAMeasles. When I turned it on it had little spots all over the screen, and with no warning it would suddenly spit the disk out. It was very hot on its forehead where the menus are. Whenever it was transferring files between disks, it would make a weird wheezing noise.

I panicked. I called all the doctors in the whole phone book only to find out

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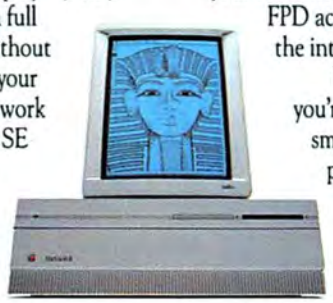
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Easily installed on a Macintosh Plus, SE or Macintosh II, the Radius Full Page Display is compatible with all standard Macintosh software. Which means your software investment is safe. In fact, it's actually more valuable.

The FPD is not a replacement for the screen in your Macintosh. It's an enhancement. Because the FPD actually works in combination with the internal screen in your Macintosh.

But, no matter what application you're working in, you'll work faster, smarter and more productively. And print a lot less because you can see full pages as you design them.

With PageMaker, you can use the FPD for page layouts and the Macintosh screen for your tools.

In Microsoft® Excel, you can place a spreadsheet on your FPD and a linked graph on your Macintosh screen.

The Radius Full Page Display has achieved critical acclaim from both enthusiasts and the trade press.

If you review the reviews of the experts, editors and evangelists of the Desktop Publishing industry, almost to a person, the Radius Full Page Display is regarded as one of the major hardware advancements in Desktop Publishing.

The FPD was designed by key members of the original Macintosh team. It preserves the design integrity of your Macintosh.

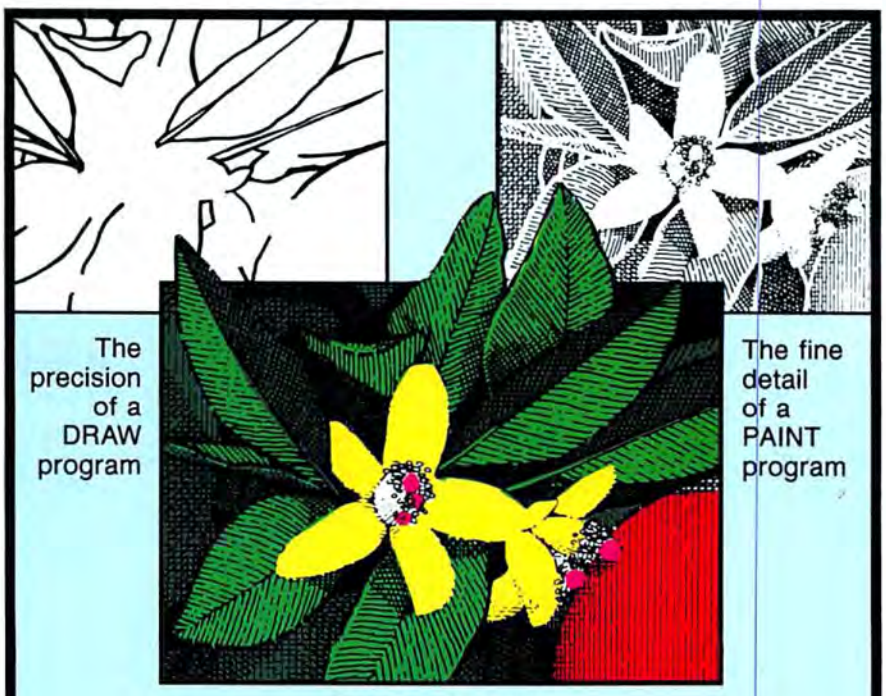
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Adrian Mello, MacWorld, Jan '87

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Bob LeVitus, MACazine, Jan '87

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Sharon Aker, MacUser, Feb '87



Suggested Retail Price: $149.95

System Requirements:
Macintosh 512K, Plus, XL (1 mb)

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P.O. Box 261430
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none of them treated computers. I frantically flipped through the manual, but there was nothing about RAMeasles. I even called the dealer but he didn't know anything about computer sicknesses.

I decided to shut down and give it a rest. When I started it in the morning, it seemed to have recovered. When I discussed this with my Dad, he suggested that in the future I shouldn't use the computer while I am sleeping.

JONATHAN E. DURKEE
AGE 11
SACRAMENTO, CA

THE WRONG SUIT

I'll dispense with the accolades for your excellent publication and get right to the point: What sort of control do you exercise over your contributing editors?

The "bug" that has resulted in John Dvorak's tendency to produce pure tripe has apparently now infected Doug Clapp. As a militant Mac owner and advocate and, according to Clapp's August '87 column a Suit (and therefore a person whose "ignorance level is frightening"), I would like to get a message to the Clapp unit.

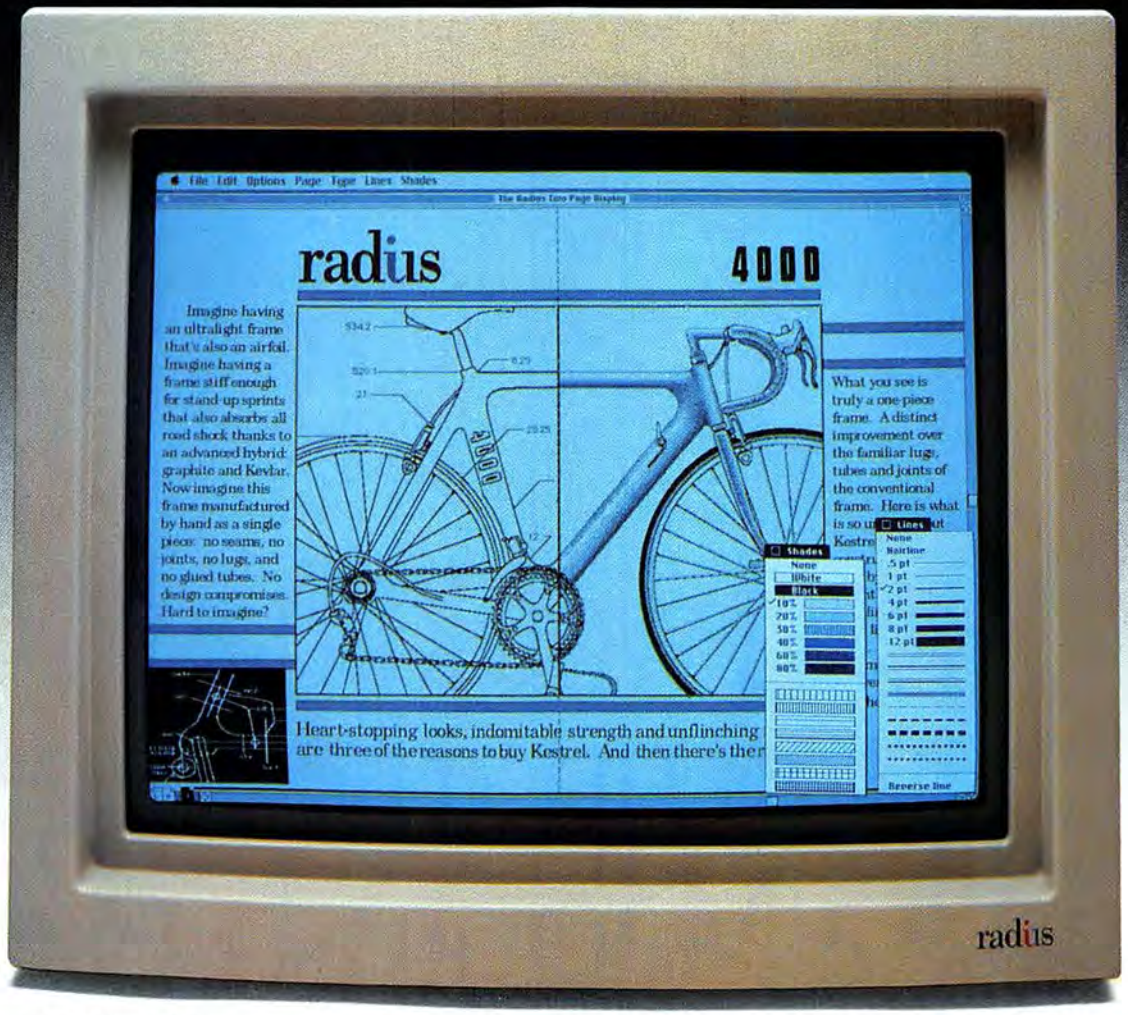
I love the Mac and use it constantly. I do so because I don't have the time, inclination or patience to read even this (excellent) publication from cover to cover, much less devote a lot of time to studying the Mac's inner workings.

The Mac wasn't designed for little Clapp people who thrive on understanding its every nuance. It was designed for me, so I could grab a mouse and be productive in a hurry. While Clapp is entitled to his opinion, he is not entitled to insult me, especially not in print, and certainly not in a magazine whose sole purpose is to provide me a (paid) service. Even if Doug isn't smart enough to realize from whence his income is derived, you should be, and I think that you owe me (and a lot of other Suits) an apology.

JOHN ECKERT
IVYLAND, PA

There are Suits and suits. I don't think Doug was writing to you. Even after reading your letter several times, I don't think the folks (both male and female) to whom he is referring would either read his column or feel the need to respond to it if it was read to them or have the ability to do so. And, of course, you (like many other readers) may simply skip Clapp and Dvorak in favor of me, Wiggins, and Shapiro. You'll only be losing about 2 percent of the editorial content of the magazine, and I'm sure you save far more than that (percentagewise) in taking advantage of one of our reduced-price subscription offers.—SB

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Every Radius product is designed by key members of the original Macintosh team. Hence the painstaking detail to both Macintosh electronics and Macintosh aesthetics.

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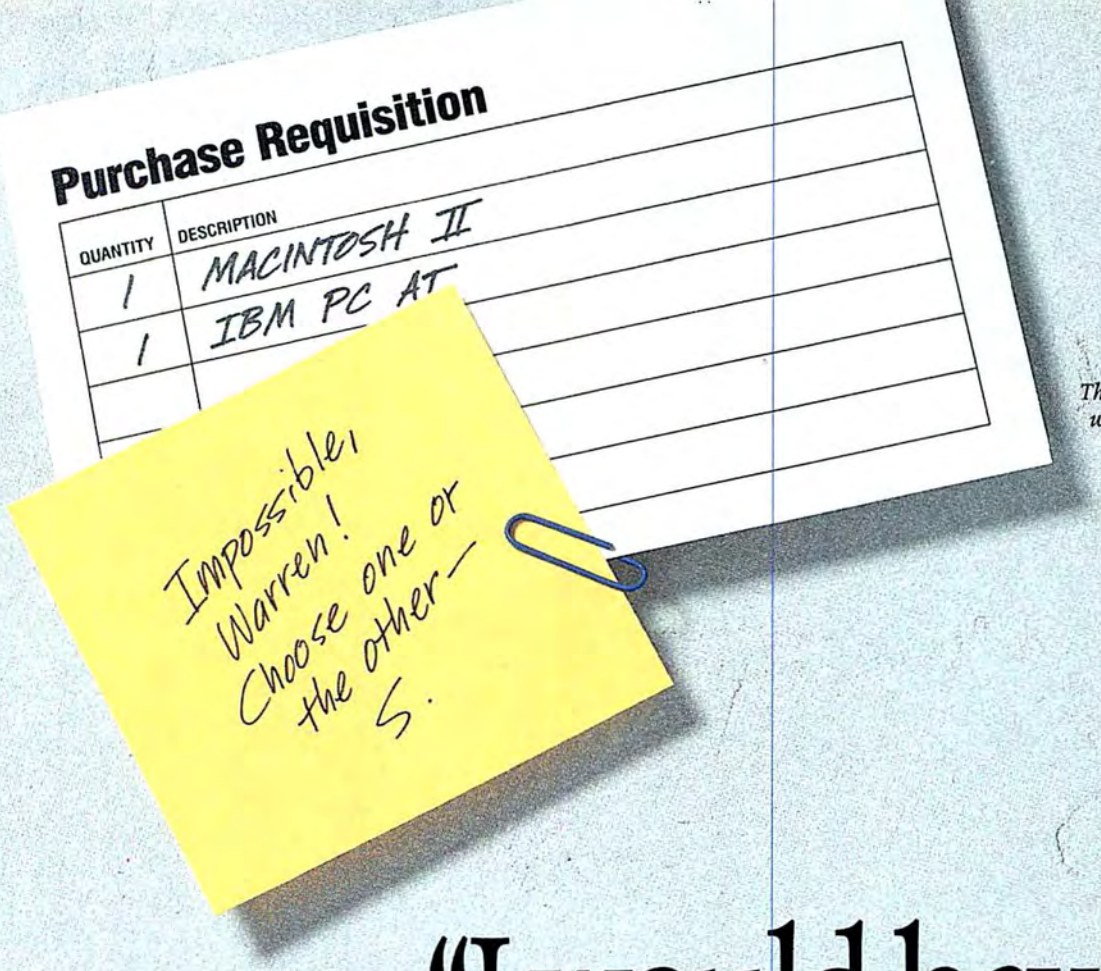
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The obvious solution was unrealistic.

"I would have given up anything to use a Macintosh, except my PC software."

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"You can't have your Macintosh™ and PC too." Famous last words.

People say, "Where there's a will, there's Warren." Which means I don't settle for words like No. Impossible. Can't be done. No way.

So when I decided I wanted a Macintosh, but didn't want to give up Lotus 1-2-3® or dBASE® III, I naturally set about looking for a way to have it all.

The fastest fix was to buy both an IBM® PC and a Macintosh. "Not possible," said the DP/MIS manager. "Pick one. Any one you want, as long as it's MS-DOS® compatible." Witty guy.

Then I searched everywhere for someone willing to loan me a PC in exchange for executive privileges. I was willing to give up anything, but I kept hearing No. Not interested.

Without another alternative in sight, I decided to surrender and settle for a PC. Then, I discovered an article on AST's newest products—MS-DOS co-processors for the Macintosh II and Macintosh SE. The cavalry had arrived.

What I like best about AST's Mac86 and Mac286:

- *I retain the benefits of the Mac desktop while running DOS*
- *I can cut and paste text from both MS-DOS and Macintosh environments*
- *I have full access to DOS programs and data through 5.25" MS-DOS floppy drives*
- *My MS-DOS files share Macintosh hard disk volumes*

The article said AST's Mac86™ and Mac286™ allow you to actually run MS-DOS application programs on your Macintosh. Just plug the DOS processor into your Macintosh II—Mac86 into an SE—and load your favorite MS-DOS application software onto the Mac's hard disk. I was sold.

MS-DOS on my Mac looked and felt just like all my other Mac applications—great. I just pointed and clicked. The MS-DOS prompt I know and love appeared in a window on my screen. From there on, I used MS-DOS programs and commands as if I were working on a PC.



I would have traded anything for the best of both IBM and Mac worlds.

I even moved Macintosh files into MS-DOS, sometimes cutting and pasting parts from one environment to the other. And when I was finished with my PC and Macintosh files, I stored them both on the same Macintosh hard disk without any clumsy file transfer procedures to slow me down.

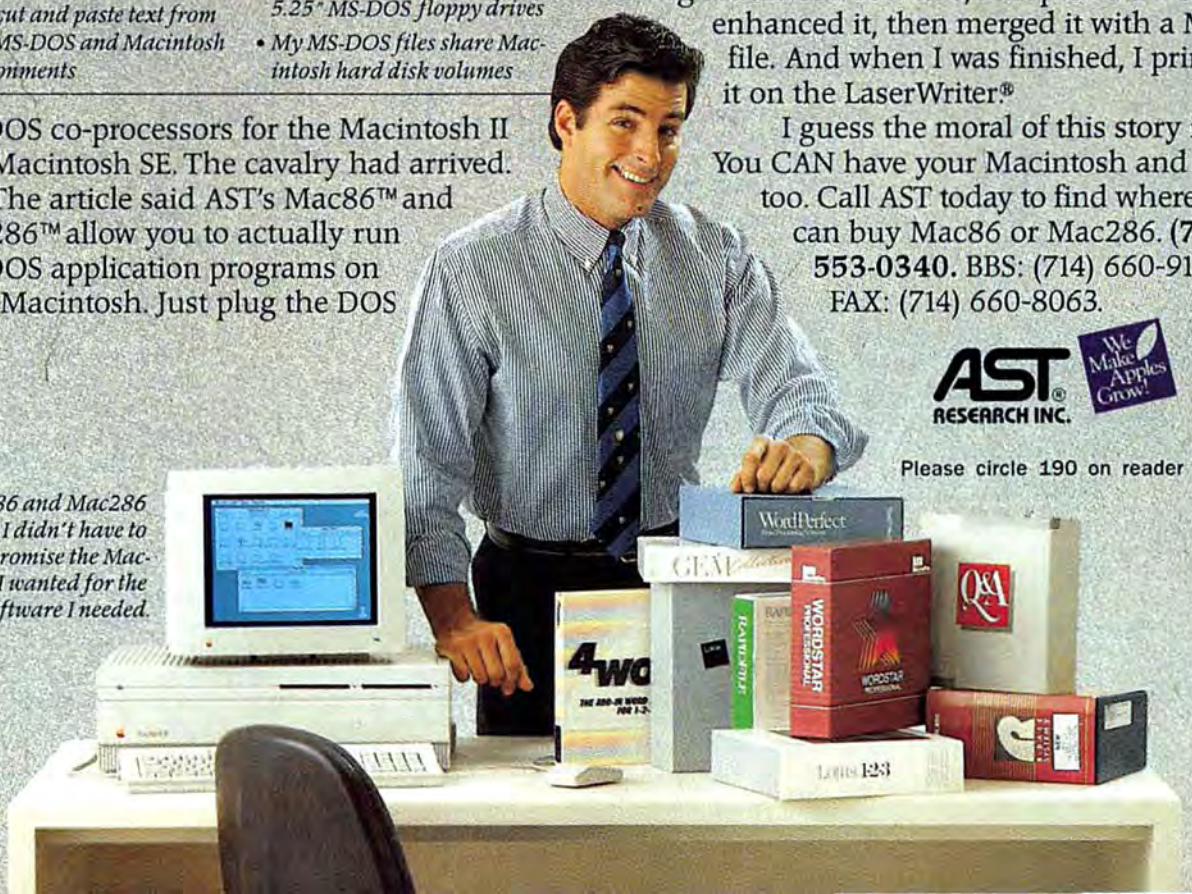
Back in the Macintosh environment, I still had immediate access to all of my PC files. Using Macintosh software, I reopened a PC file, enhanced it, then merged it with a Mac file. And when I was finished, I printed it on the LaserWriter.®

I guess the moral of this story is: You CAN have your Macintosh and PC too. Call AST today to find where you can buy Mac86 or Mac286. **(714) 553-0340.** BBS: (714) 660-9175. FAX: (714) 660-8063.

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Mac86 and Mac286 meant I didn't have to compromise the Macintosh I wanted for the IBM software I needed.

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YOU'RE NOW ENTERING...

The Saving Zone, a mail order house, was so terrific that your readers ought to know about it. I ordered Odesta's *Double Helix* by telephone and received it in due course. When I opened the program for the first time, the screen read "Bogus Helix" and the program would not run. I was scheduled for a vacation that week, and was counting on using the program to set up a data base.

I explained the problem to Odesta, and requested another disk. The technical services manager replied that she could not replace the disk until she had my registration card, which, of course, I had only just received with the defective disk. She was inflexible.

Fortunately, I called the Saving Zone and they immediately contacted Odesta to find a remedy. The replacement disk arrived within a few days. I think that's phenomenal customer service.

MURRY D. BROCHIN
MILLBURN, NJ

We think so, too. — LK

A LITTLE HINDSIGHT

I was looking through a 1983 book, *The Word Processing Book* (by Peter A. MacWilliams) when I found a section concerning the Lisa. Here is a part of it:

"The Lisa uses a device known as a mouse to move a pointer around the screen. A mouse is a sort of executive joystick. If you want to file something, you move the pointer to a picture of a little folder and push a button. Business, then, becomes a computer game."

Imagine where we'd be if that opinion had stuck.

JASON TORGERSON
BROOKLYN PARK, MN

THEM'S THE BREAKS

In the September '87 issue, Robert Wiggins asks why desktop publishing programs do not take into account pagination—or signatures. I agree that signatures are very important when trying to ensure that all the color articles go on color pages, and that one-color articles go on black and white pages. I also agree that signatures might be helpful.

However, I have worked on nearly a dozen magazines, and for each one, the flats were pasted up as facing pages. We left it up to the printer to determine signatures. Therefore desktop publishing programs as they currently operate are fine for our purposes. My guess is that most magazines are assembled similarly.

GREG RAVEN
LOS ANGELES, CA

Drive a Hard bargain

"You can easily fall in love with the quiet Jasmine drive... (It) ran flawlessly during the review period, with very good performance and no compatibility problems of any kind." – *MacWorld, July 1987*

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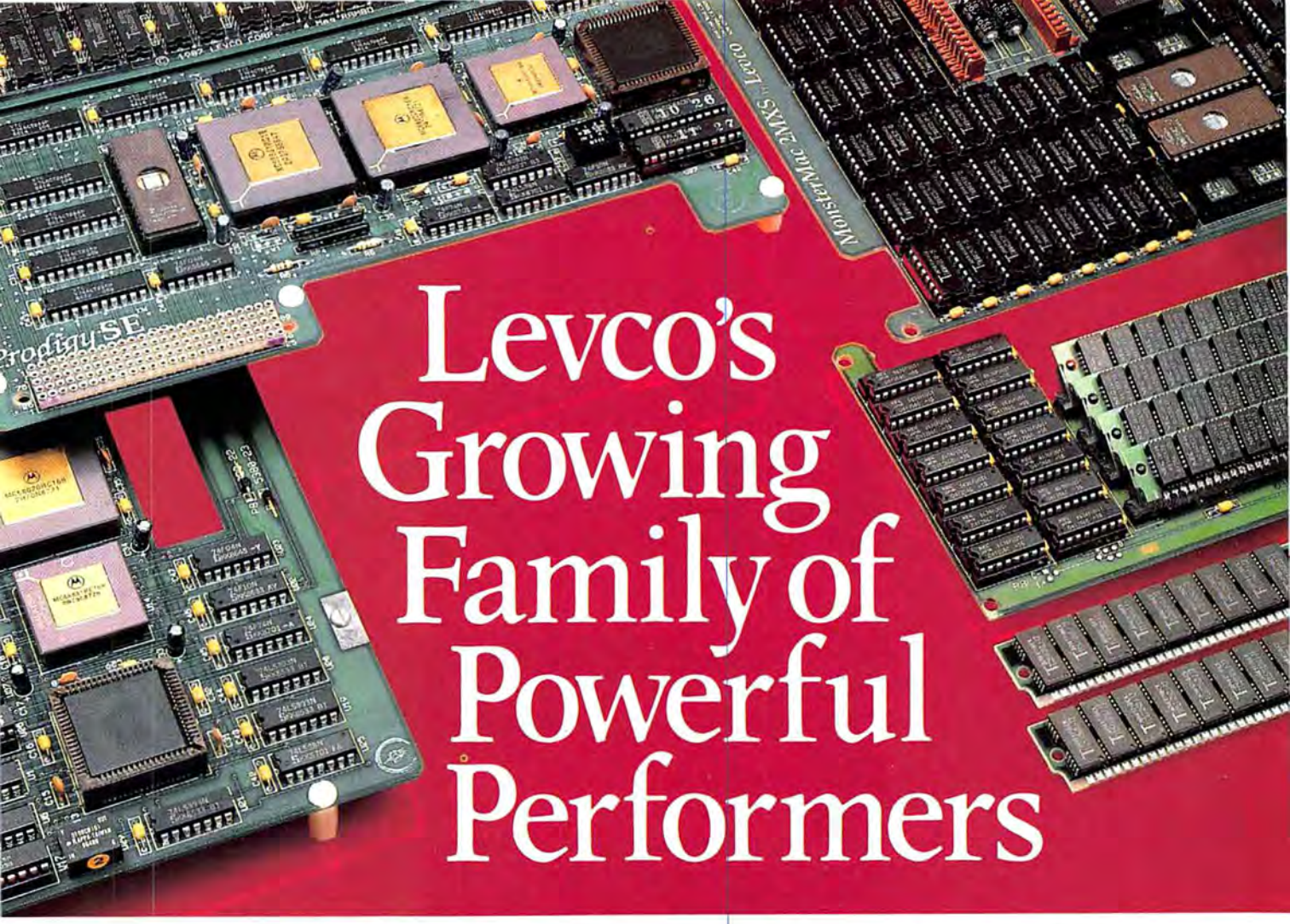
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by Doug Clapp



A Dollar a K

I've found the truth at last. I did it with *Excel*.

It's this software price/value thing. A real stickler. Not what software costs to make; we figured that out last year. That's the easy part. Value is harder.

We could give up, of course. We could assign "value" to a non-numerical mystical domain and say things like "the value of a product is a subjective assessment that can only be made on an individual basis and is therefore not quantifiable."

That's the wrong attitude. Particularly if you're sitting in front of a computer, like I am.

So let's find out where the value is. What has it and what doesn't.

What's a good buy? What's a bad buy? What's priced right? What isn't?

First, we take some software. A pseudo-random assortment of popular packages. Here they are: *Word* 3.0, *Red Ryder* 10.0, *WriteNow, Cricket Draw, SuperPaint, PageMaker* 2.0, *Microsoft Works, MORE, Microphone, Excel, FullPaint, Microsoft File, Reflex, Double Helix* and *MacDraw*. All familiar names. The question is: What's a good buy? What's a bad buy? What's priced right? What isn't?

First, let's find out how big these puppies are. Easily done:

Application	Size in K
Cricket Draw	285
Double Helix	361
Excel	385
FullPaint	144
MacDraw	98
Microphone	164
Microsoft File	148
Microsoft Works	327
MORE	293
PageMaker 2.0	572
Red Ryder 10.0	232
Reflex	202
SuperPaint	161
Word 3.0	349
WriteNow	79

We're on the way now! I can smell it.

So that's how big they are. Now let's add price:

Application	Size in K	Price
Cricket Draw	285	$295
Double Helix	361	$495
Excel	385	$395
FullPaint	144	$100
MacDraw	98	$295
Microphone	164	$75
Microsoft File	148	$195
Microsoft Works	327	$295
MORE	293	$295
PageMaker 2.0	572	$495
Red Ryder 10.0	232	$80
Reflex	202	$100
SuperPaint	161	$99
Word 3.0	349	$395
WriteNow	79	$175

We're almost there. Now the big question: What's software worth?

Answer: one dollar a K.

A program that's 100K is worth $100. Pay less and you've got a good deal. Pay more and you're paying too much.

Not fair, you say? Of course it's not fair! Life isn't fair! But it's true.

Or look at it this way: people buy features. Features take code. The more features, the more code. That's why *Excel* is larger than *Multiplan*, and *MORE*'s larger than *ThinkTank*.

Now the results. Here's the formula: Size in K minus price equals value. When "value" is zero, the value is right on. Fair. Higher numbers mean better value. Lower, negative values mean poorer value.

Now let's do the list a final time, and sort it in descending order on "Value."

Application	Size in K	Price	Value
Red Ryder 10.0	232	$80	152
Reflex	202	$100	102
Microphone	164	$75	89
PageMaker 2.0	572	$495	77
SuperPaint	61	$99	62
FullPaint	144	$100	44
Microsoft Works	327	$295	32
MORE	293	$295	-2
Excel	385	$395	-10
Cricket Draw	285	$295	-10
Word 3.0	349	$395	-46
Microsoft File	148	$195	-47
WriteNow	79	$175	-96
Double Helix	361	$495	-134
MacDraw	98	$295	-197

I'm not surprised, are you? *Red Ryder* is an extraordinary value even at the new commercial price of $80 and the formula only confirms it. *Microphone*, also, a very good value. *PageMaker*, surprisingly, also a good buy — look at that hunker: 572K! And that's without help files, dictionaries or whatever.

Purists might argue that *WriteNow*'s Translator utility (to convert between other WP formats) should be included in *WriteNow*'s overall "K." If so, *WriteNow* would be a much better value. But it's such a kludge as a separate application that I won't count it.

Now, if we could just get these value ratings into MiniFinders . . .

INSTANT EDITORIAL RESPONSE

From Steven Bobker: Doug has raised many valid points in his column this month, and his attempt at establishing a standard of value is long overdue. However, I think that he misses the mark. The price of the product must certainly be a factor in any standard, but program size is a bad criterion for several reasons.

One reason is that the size criterion unfairly penalizes programs that are tightly coded entirely in assembly language. These are often the fastest, most efficient programs. Indeed, a program written in Pascal will be longer than a program with the same functionality written in assembly language.

The other main problem is a "large size" standard encourages sloppy, inefficient (and hence slow to run) programs. This became a major problem in the MS-DOS world as more memory became standard. More size does not always translate to more features.

How about usage as the second criterion? Instead of program size, take the percentage of your use of the program. That's a truer measure of a program's value to you. Divide the price by that number to get your index of value.

How about it, Doug?

GARY HOVLAND

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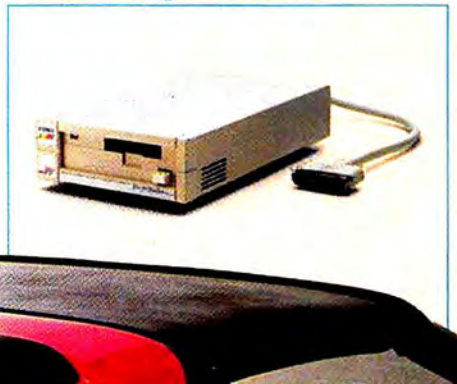
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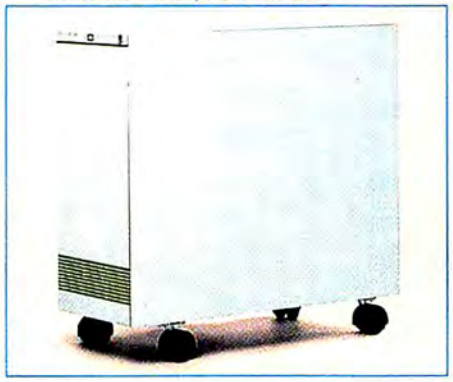
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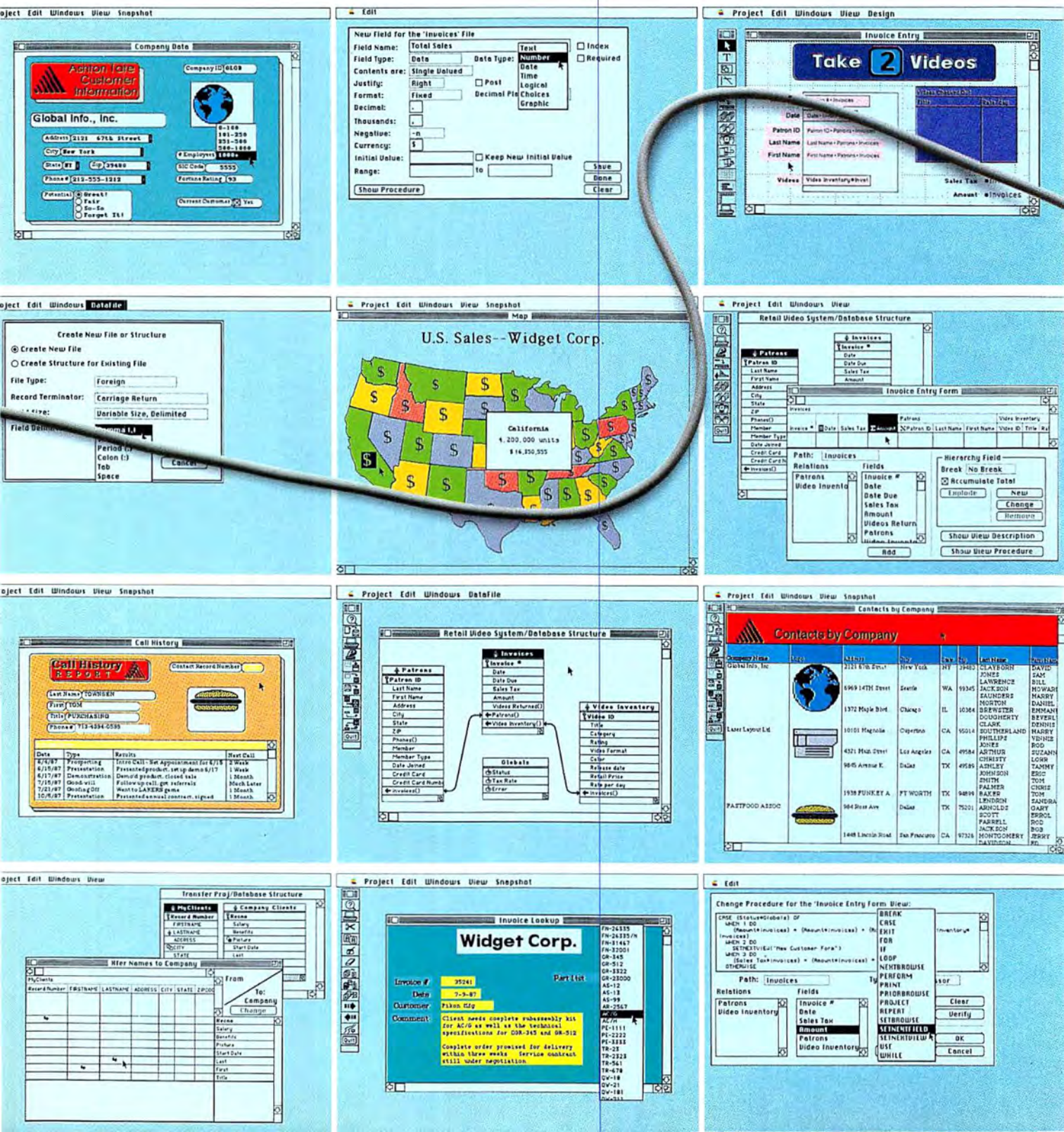
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EDITED BY LOUISE KOHL



Bugs from Abroad

Here is a special bug report for readers who are using localized (non-American) *Systems*. If you're using a localized version of *System* 4.1 you may have wondered why the key combinations that you see in menus, we often suggest and that many manuals make such a point of don't work for you. What happens is that when you press the Command key, the keyboard behaves as though it was an American keyboard. For example, Undo should always be Command-Z. If you have a keyboard localized for Germany, however, you must press Command-Y to Undo, because the Y on a German keyboard is where the Z is on an American keyboard. We're told that Apple Germany may have a patch by the time you read this.

And thanks to Sebastian Kempgen, of Konstanz, West Germany for bringing this overseas bug to our attention. — *Ellen Hirame*

Free for a Registration Card

This is the first edition of a new *MacUser* feature. Every month we'll list those products whose publishers have announced *free* upgrades. Other upgrades will be noted on a space available basis and, of course, you can check out our regular software version number list, where we're going to start printing changed entries in a second color.

This month the good news is for owners of *MindWrite*, version 1.0. MindWork has recently released version 1.1, which not only fixes most of version 1.0's problems, but substantially enhances the product. Registered users can get the updated version by simply sending their original master disk to:

MindWork Software
1.1 Update
100 Pacific Street, Suite 555C
Monterey, CA 93940

The MindWork Technical Support Line (408) 624-0522 will answer any further questions about upgrades.

If you publish software and are offering a free upgrade to a new version, be sure to let the Update Manager here at *MacUser* know about it. Write to the Update Manager, c/o *MacUser*, Suite 250, 110 Marsh Drive, Foster City, CA 94404 or send electronic mail to 72257,2671 (CompuServe), macuser (MCI Mail), or X0259 (AppleLink). The Update Manager is also interested in any and all other information about new versions of software. — *SB*

Mac Slides Home

If you're considering buying an expensive desktop film recorder, take a look at *Carousel Color Slide Software*. It might just do the job while saving you a substantial amount of money.

This new product from 20/20 Data Systems lets you get color 35 mm output from files created with *MacDraw* or other compatible object-oriented applications.

Carousel's features include gradient color ramping on boxes, text and backgrounds and a selection of 256 colors per palette (with multiple palettes being available). The software package comes with a tutorial, 5 X 7 color prints and 35 mm slides of the color palettes.

All you have to do is transfer your files via modem to Stokes Slide Service and you'll have your slides back in as soon as 24 hours. You can get slides with either 2048-line resolution ($7 each) or 4096-line resolution ($14 each). And if you order six or more slides, free 48-hour delivery is included. *Carousel Color Slide Software* is available for $249 from 20/20 Data Systems. For more information you can write to them at 7000 Cameron Rd., Austin, TX 78752 or call (512) 454-2508.— *JH*



TONY LIMJACO

Hot Off the Presses

Robert R. (Wiggo) Wiggins, the author of our popular Pinstripe Mac column has gone into competition with us, sort of. He recently started publishing the *Macintosh Business Letter.* This fact-filled, 12-page newsletter is on a monthly schedule until the end of the year, when it will start appearing twice a month. All subscriptions will actually start in January, so by subscribing now, you get what is, in effect, a free trial period.

It's mailed to you first class and is packed with late-breaking news and reviews of business-oriented products. There are no ads. And, as regular readers of Wiggins' column already know, no holds barred. This is a good thing. I'd say that even if he was writing for another Mac magazine.

Subscriptions cost $395 (or $795 if you want your copies FedExed the day they are printed). For more information contact Wiggins at the Macintosh Business Letter, 153 California Ave, Suite F213, Palo Alto, CA 94306. Or call (415) 322-0600. — *SB*


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Post-Script Progress, and Its Price

Apple's LaserWriters have recently been criticized for using an outdated and slow version of PostScript. That's history. As of September 15th all LaserWriters contain the latest version of PostScript, Rev 47. That's the same version most of its competitors are using.

PostScript, Rev 47, will let a LaserWriter construct fonts up to 25 percent faster and process bitmap images up to 40 percent faster than they could previously. Apple is upgrading all unsold LaserWriters to include this new improved ROM set.

All that means is you should be sure you are getting Rev 47 when you buy a LaserWriter or a LaserWriter Plus Upgrade Kit. Here's how to tell if you're getting Rev 47: LaserWriters that contain the new Rev 47 ROMs are identified with a "47.0" printed on a colored dot, next to the bar code label on the box. LaserWriter Plus Upgrade Kits that have the new ROMs are identified with a "47.0" printed on the spine of the box, next to the part number.

That's great, even if it's late. The question, "How much is this problem fix going to cost? Will it be free? Will it just cover the cost of installing the new ROMs?" I suspect you know the answer. If you haven't already upgraded your LaserWriter to a LaserWriter Plus or if you are buying a new LaserWriter, Rev 47 won't cost you anything. LaserWriter and LaserWriter Plus Upgrade kit prices remain at their old prices.

If, however, you upgraded to a Plus already, Rev 47 will cost you $349 (suggested list) plus that little trip to the dealer, always such a pleasure with the easy to carry, seventy-plus pound LaserWriter. Thanks, guys, you got your pioneers again. — *SB*

RUMOR MANAGER

The first real Mac II Clone is presently under development in a very secret lab in Manhattan, Kansas. Tandy has a team of engineers and programmers putting in long hours, in hopes of getting BlackJack (the current code name) out early next year. BlackJack will have all capabilities of the Mac II, and the informants say they are doing it the right way. That is, just as the PC was cloned in such a way that IBM couldn't stop it, so Apple will just have to accept the existence of BlackJack. Tandy's toy will be priced at least $1500 cheaper than an equivalently equipped Mac II, and will be able to use any and all NuBus boards marketed for the Mac II.

Expect some real breakthroughs in statistics programs in the next few months. No, not the stuff you already know about, the color stuff and the enhanced *MacSpin.* The Rumor Manager is here to tell you about things you didn't already know about. Anyway, look for two advances, both based on recent developments in artificial intelligence. The first is a program that will be able to create useful data sets from ordinary spreadsheet and data base files, pulling out just what is needed to create a user-defined statistics set. The other is a program (well, maybe two programs) that will suggest meaningful statistics based on its own examination of a data set. Both types of programs will make statistics a lot more meaningful and useful to more people. And the prices will be right, too.

Cabbage, the file recovery utility we told you about several months ago, has run into some problems. The developer claims that Apple recently changed a few of the rules. And until he's figured out what the results of what they've done are, *Cabbage* is going nowhere.

Bubble memories are about to stage a comeback. Not only does TI have a Mac II-compatible unit in testing, but two other companies say they are well along with theirs. One of them will work with Mac Pluses and SEs as well as with the Mac II.

The long awaited *MacPaint* 2.0, the color one, should just about be done. And the copy seen here recently was fabulous. Maybe it can't do all the fancy, glitzy stuff, but it is practical and really useful. The beta copy has won itself a home on some computers around here, beating out some highly touted programs.

Just as some really good word processors hit the market, word has leaked to us of yet new developments in the word processing field. These don't seem to be new basic programs, but add-ons and enhancers for existing programs. Some of them promise hypertext capability and some promise something even more exciting, cognitive text creation.

Have you heard any good rumors recently? Can you share them? Does your legal department agree? Will you share them anyway? If we use your rumor we'll send you a token of our appreciation and promise not to use your name. Anonymous contributions also accepted. Contact the Rumor Manager by snail mail care of *MacUser,* Suite 250, 110 Marsh Drive, Foster City, CA 94404, or electronically. Right now we can be reached on MCI Mail (macuser), CompuServe (72257, 2671) and AppleLink (X0259).

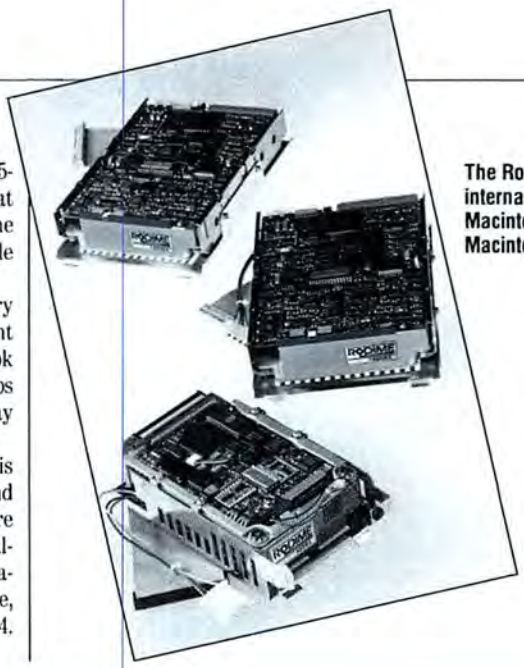
Disks Go Rodim-ing On

Forty megs in a Mac II? That sounded a bit skimpy to the folks at Rodime, a very, very large hard disk manufacturer. They've come up with two new internal units, one with a capacity of 100 megs (the 1000 RX), the other with 140 megs (that, oddly enough, is the 1400 RX). Now that's Mac II capacity.

The 100-meg drive was available at press time (as was the 45-meg 450 RX internal drive that fits both the II and the SE). The 140-meg drive should be available as you read this.

The sample we saw was very sturdily built, with excellent shock mounting. Installing it took just a few minutes and a Philips head screwdriver. It's safe to say that anyone can do it. Really.

Suggested list for the 450 RX is $1595; for the 1000 RX, $2995; and for the 1400 RX, $3495. For more information, including local dealers, contact Rodime at 29525 Chagrin Blvd., Suite 214, Pepper Pike, OH 44142. Or call (216) 765-8414. — *Ellen Hirame*



The Rodime 450 RX, an internal hard drive for the Macintosh SE and Macintosh II.

UPDATES

Programs, like people, change over time. To get the most out of your programs, you should be using the most recent versions. Here's a list of the current version number (as of press time) of many popular programs. The version number of a program can usually be found by running the program and checking the About... item at the top of the Apple menu.

Apple System software is special. Generally, and unless you have a 128K Mac, you should be running *System* 4.1. and *Finder* 5.5 (128K owners should continue to use *System* 2.0 and *Finder* 4.1). If you don't have the latest *System* and *Finder* you can get them free from an authorized Apple dealer. Be sure to bring in a blank disk or two, though.

All programs listed here are HFS compatible. The meanings of the codes in the right column are as follows: CP or NCP, copy protected or not; //, programs we have found to be Mac II compatible (not yet a comprehensive list); S, shareware (try before you buy software); and 5, requires at least 512K of RAM.

A.A.I.S. Prolog	M1.15	NCP,5
Acta	2.0	NCP,//
AMS General Ledger	2.08	NCP
AppleShare	1.1	NCP
Aztec C	1.06H.1	NCP
Back to Basics	1.03	NCP
Balance of Power	1.03	CP
Bulk Mailer	3.0	NCP,5,//
Business Filevision	1.1	CP
CalendarMaker	3.0	NCP,S
Chooser	3.1	NCP
ClickArt Effects	1.01	NCP,//
Clipper	1.01	NCP
ColorChart	1.3	NCP
ColorMate	2.1	NCP
ColorPrint	2.03	NCP
Comic Book Factory	1.6	NCP,//
Comic Works	1.0	NCP,//
ConcertWare+	4.0	NCP,//
ConcertWare+MIDI	4.0	NCP,//
Copy II Mac	7.0	NCP
Copy II Hard Disk	7.0	NCP
Cricket Draw	1.2	NCP,//
Cricket Graph	1.2	NCP,5
Deluxe Music Construction Set	2.0	CP
DesignScope	1.14	NCP,5,//
Disk Express	1.10	NCP,5
Disk First Aid	1.0.1	NCP,5
DiskInfo	1.45	NCP,S
Disk Ranger	3.1	NCP
DiskTop	3.0	NCP
Dollars & Sense	1.4	NCP,//
Easy3D	1.01	NCP
Edit	2.1	NCP
ExperCommon Lisp	2.2	NCP,5
ExperLisp	1.5	NCP,5,//
ExperLogo	1.1	NCP
EZ Draft	2.0	NCP,5,//
Fedit Plus	2.0	NCP,//
Filemaker	1.0	NCP,//
Filemaker Plus	2.0	NCP,//
Filevision	1.0	CP
Finder (MFS-128K)	4.1	NCP
Finder (HFS)	6.0	NCP,5
FlashBack	1.6	NCP
Flight Simulator	1.0	CP
Fokker Triplane	1.0	CP
FONTastic	2.8	NCP
FONTastic Plus	1.4	NCP, //
Font/DA Mover	3.5	NCP
Fontographer	2.3	CP,5
Forecast	3.0	NCP,5
Frame Mac	1.1	NCP,5,//
FreeTerm	2.0	NCP, //
FullPaint	1.0	NCP,5
Gato	1.42	CP
Glue	1.04	NCP
GraphicWorks	1.1	NCP
Hard Disk 20	1.1	NCP,5
Hard Disk Utility	2.0	NCP,5
Helix	2.0r11	NCP,5
Helix, Double	1r35	NCP,5,//
HFS Backup	2.01	NCP,5
HFS Locator Plus	2.0	NCP
Illustrator	1.0	CP/NCP, 5,//
ImageWriter	2.6	NCP
ImageWriter, AppleTalk	2.6	NCP
InBox	2.0	NCP,5
Insight GL	1.0	NCP,5,//
InTalk	2.11	CP
Jazz	1A	CP,5
JustText	1.1	NCP,5
Laser Author	1.3	NCP,5,//
Laser Prep	4.0	NCP
LaserShare	1.0	NCP
Laser Speed	1.5	NCP,//
LaserStatus	2.0	NCP
LaserWriter	4.0	NCP
Layout	1.3	NCP,S
Legal Billing	1.72	NCP, //
Legal Billing II	2.39	NCP,5, //
Lightspeed C	2.01	NCP
Lightspeed Pascal	1.0	NCP
Lode Runner	1.0	CP
Mac-3D	2.0	CP
MacASM	1.2	NCP
MacBillboard	4.01	NCP,S
Mac C	5.0	NCP,//
MacCalc	1.2	NCP
Mac Disk Catalog II	2.1.1	NCP
MacDraw	1.9	NCP
MacDraft	1.2a	NCP
MacFlow	1.02	NCP
MacGolf	2.0	CP
MacInTalk	1.1	NCP
MacInUse	2.0	NCP,//
MacLabeler	2.2	CP
MacMoney	2.02	NCP
MacMovies	1.02	NCP
MacNosy	2.8	NCP
MacPaint	2.0	NCP
MacPalette	1.0	CP
MacPascal	2.1	CP
Mac + II	3.0	NCP
MacProject	1.1	NCP
MacProof	2.0	NCP
MacSafe	1.03	CP
MacServe	2.1	CP,5,//
MacSpec	1.3	CP
MacSpin	1.1	CP
MacSpool	2.1	NCP
MacTerminal	2.2	NCP
MacTools	7.0	NCP
MacWrite	4.6	NCP
Mac Zap Copier	4.55	NCP
MailManager	1.0	CP
MapMaker	2.0	NCP
MDS	2.0	NCP
Measure Test	12.7	CP,S,//
Megamax C	3.0	NCP
MicroPhone	1.1	NCP,//
Micro Planner Plus	5.8	CP
MindWrite	1.1	NCP, //
miniWriter	1.39	NCP,S
MockPackage+	4.3.4	NCP,S
MORE	1.1C	NCP,//
MPW	2.0b	NCP,5
MS BASIC	3.0	NCP
MS BASIC Compiler	3.0	NCP
MS Chart	1.0	CP
MS Excel	1.04	NCP,//
MS File	1.05	CP
MS Fortran	2.2	CP
MS Word	3.01	NCP
MS Works	1.0	NCP
Multiplan	1.1	NCP,//
MusicWorks	1.1	CP
myDiskLabeler	2.11	NCP
Neon	2.0	NCP
Omnis III Plus	3.26	CP,//
OverVUE	2.1	NCP,//
PackIt III	1.3	NCP,S
PageMaker	2.0a	NCP,5
Parameter Manager	1.092	NCP
PictureBase	1.2	NCP
Plains and Simple	4.1	NCP,5,//
PowerStation	1.1	NCP,5
Profit Stalker II	1.3	NCP
Project Billing	3.0	NCP,5,//
QUED/M	2.0	NCP
Quick & Dirty Util., Vol. 1	1.5	NCP
Quick & Dirty Util., Vol. 2	1.0	NCP
Rags to Riches	3.0	CP,//
Ragtime	1.1	CP,//
Ready, Set, Go!	3.0	NCP,//
Record Holder	2.1	NCP
REdit	1.2	NCP
Red Ryder	10.0	NCP,S
Reflex	1.01	NCP
ResEdit	1.1b7	NCP,//
Sargon III	1.0	CP
SideKick	2.0	NCP
Silicon Press	1.1	NCP
Slide Show Magician	1.3	CP
Smartcom II	2.2B	NCP,//
SoundCap	4.4	CP
SpellNow	1.0	NCP
Spellswell	2.0	NCP
StatView 512+	1.1	NCP
StatWorks	1.2	NCP,//
Stella	1.3	CP,5,//
Straight Talk	2.08	NCP,//
Studio Session	1.4	CP
SuperPaint	1.00	NCP,5,//
Switcher	5.1	NCP,5
System (MFS-128K)	2.0	NCP
System (HFS)	4.1	NCP
Telescape Pro VT 100	1.3	NCP
Tempo	1.1	NCP
ThinkTank 512	1.3	NCP
Thunder!	1.0.1	NCP
Thunderscan	3.4	NCP
TML Pascal	2.01	NCP
TMON	2.8	NCP
Top Desk	2.3	CP
Turbo Maccountant	2.0	NCP,//
Turbo Pascal	1.0E	NCP,//
VersaTerm	3.0	NCP
VersaTerm Pro	2.0	NCP
VideoWorks II	1.1	NCP, 5, //
VIP	2.2	NCP
Widgets	3.0	NCP
WriteNow	1.0	NCP,//
XPress	1.04	CP/NCP,5
ZBasic	4.0	NCP

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Balance of Newsletters

Chris Crawford, whose computer game credits include *Balance of Power* and the recently announced *Trust and Betrayal: The Legacy of Siboot,* has entered the desktop publishing arena with a newsletter about what he knows best — games. *The Journal of Computer Game Design* is a serious look for professionals at the fun (and headaches) behind designing games.

Topics range from technical articles that discuss the use of natural language processing and other AI routines in game design to criticism of industry practices. Crawford chastises designers (including himself) for still being "locked in the 64K gestalt of the Apple II." *JCGD* also covers practical matters such as printing an author's credit on the game box and salaries.

Crawford is accepting open submissions for *JCGD* — a good policy since payment is measured in status, not dollars. A year's subscription (six issues) costs $30 and is available from *JCGD,* 5251 Sierra Rd., San Jose, CA 95132. — *BT*

Touch-Up Paint

It occasionally happens that a reviewer misses or overlooks aspects of a program no matter how long or well he has tested it. The following are notes and corrections to the feature review of *GraphicWorks* 1.1 in our October issue.

1. The program supports text processing to a similar degree of complexity as *MacWrite* — in other words, multiple fonts, styles, and sizes in the same text block. Unlike most page layout programs, however, it does not support linked text blocks.

2. The airbrush tool is adjustable in size from 2 to 96 pixels, in one- or ten-pixel increments. In fact, the airbrush tool in *GraphicWorks* 1.1 is among the most elaborate and "true to life" of any Macintosh Paint program.

3. The High-Res Bitmap tool is not referred to as the Laserbits tool in the documentation.

4. There is excellent on-line help.

5. High-res bitmaps will print faster on a LaserWriter if smoothing is de-selected and if the resolution is a multiple of 72 dpi.

6. In general, the problems noted in printing on a LaserWriter reflect incongruities between PostScript and QuickDraw. This program adheres to QuickDraw; Apple's LaserWriter driver and use of PostScript are responsible for problems with panels not clipping easels, limitations in printing with various inks, and so on. QuickDraw printers like the ImageWriter and General Computer's Personal Laser Printer are better options for printing with *GraphicWorks* 1.1, which deals with bitmaps in a sophisticated way. *GraphicWorks* can apparently print 300-dpi scanned images with the PLP.

7. *GraphicWorks* 1.1 supports TIFF images of any resolution and eight-bit color and gray scale on the Mac II screen.
— *Phil Inje Chang*



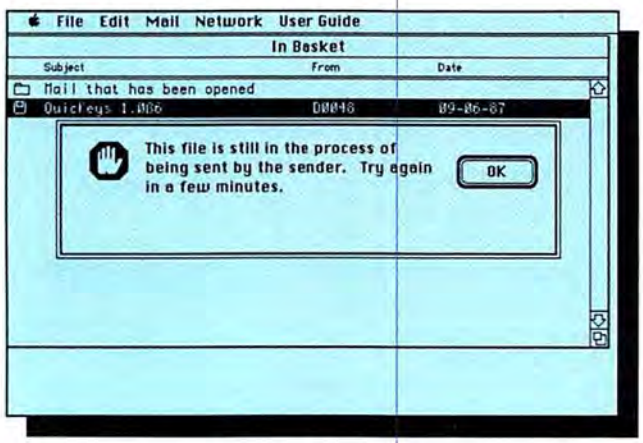
No, this isn't a new screen for the Mac. It's the MacAmber, a filter whose frame attaches to your Mac with velcro. Rumor has it that a punk version will be available in hot pink. It's $39.95 from Sideways Solutions, 1516 Oak St. #309, Alameda, CA 94501 (415) 865-5357.

We Keep Growing

Thanks to you, we have added yet another person to our staff. Victoria Juarez will be be working directly for you. She'll be available Mondays, Wednesdays, and Fridays from 9 to noon, Pacific time (that's noon to 3 for you east coasters) to handle your questions. The rest of her time will be spent researching answers both to your questions and for our editorial needs. If your questions are general, call Victoria. If they're very technical, try her. If she can't answer the question, she'll either find someone here who can, or pass it on to Dan Cochran. Since Victoria is only one person (although the amount of work she does often makes us doubt that), you may have trouble getting through to her. If you're asked to leave a message, please do leave your name and number.

If your question involves your subscription, you need to write to Kim Armstrong, at Ziff-Davis, One Park Avenue, New York City, NY 10016. — *SB*

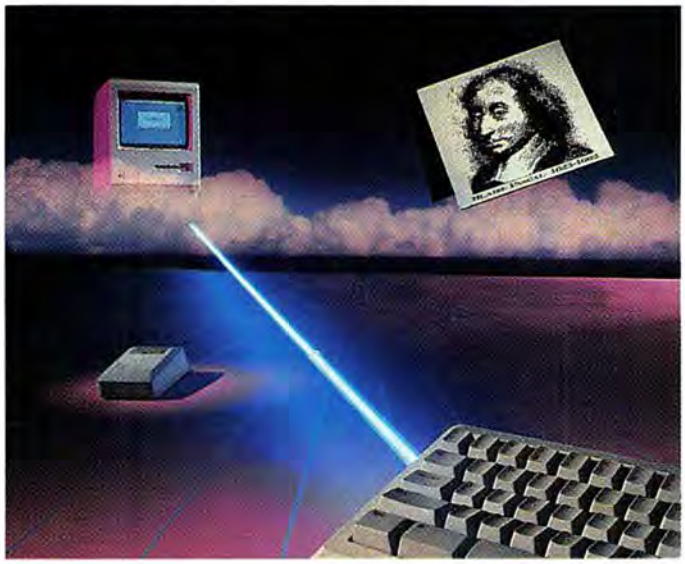
DIALOG BOX OF THE MONTH



When is in not really in? Well, for one (I'm sure you can come up with others), it isn't necessarily when AppleLink says it is. Recently Jim Litt of Jamaica, New York went to download a file AppleLink had just told him was in his Inbox and waiting for him. As you see, it wasn't. Oh, well. We hope Jim remembered to go back and get his mail later.

If you, too, would like a brief moment in the *MacUser* spotlight, send us the most interesting and unusual dialog box that you find. If we agree, we'll publish it, complete with your name and hometown, and send you a check for $25. Keep your finds on a disk for a while also. If we pick yours, we'll ask you to send us the file, so we can print it at our offices. Remember, Command-Shift-3 stores the screen image on the startup disk as a *MacPaint* file. Send your potential tickets to fame to Dialog Herb, c/o *MacUser,* Suite 250, 110 Marsh Dr., Foster City, CA 94404. No calls please. — *H. D. Plant*

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>
> *Howard Katz, MACUSER*

All products require a Macintosh with at least 512K.

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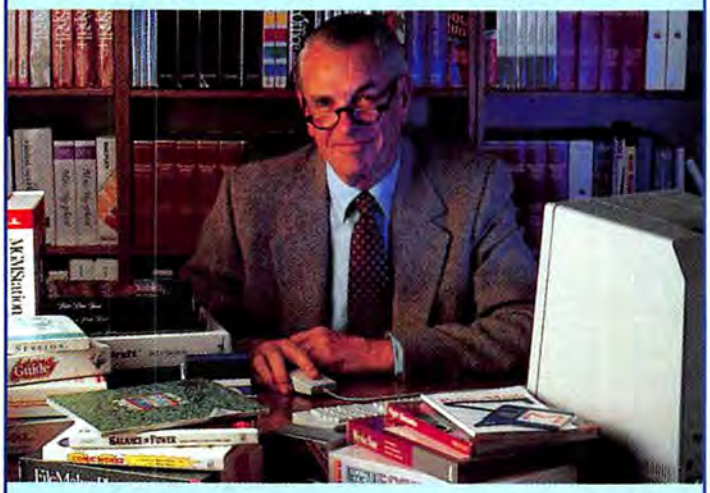
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PowerMath 2.0	13.79	Volksmodem 1200	129.72
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NEW ON THE MENU



TONY LIMUACO

The Hills Are Alive With Fonts

Beverly Hills: land of palatial estates, Rodeo Drive, pink flamingos, and...fonts? Yes, fonts! Beverly Hills is a high-quality text font now available as shareware. It comes complete with ten character sizes that support printing in all of the sizes on the *MacWrite* menu.

The Beverly Hills character set includes mathematical symbols and accommodates fractions with single-digit numerators and denominators. Included with the Beverly Hills font is a larger version called Beverly Hills Large. It has a smaller character set and comes in two sizes, 36- and 72-point. Beverly Hills Large is ideal for headlines and posters in *MacPaint* and *MacDraw*.

Two manuals are supplied (as *MacWrite* 4.5 documents) with the font. One explains how to configure a startup disk, and the other offers hints and tips on how to use Beverly Hills.

Beverly Hills is available on various bulletin boards across the country. There is a shareware fee of $10. You can also get a copy by sending $10 and a blank disk to Alan D. Hayman, 1425 S. Doheny Dr., Los Angeles, CA 90035. (California residents must add 65¢ sales tax.) — *JH*

Numbers Game

If you've ever been stuck in the Lotto line trying to think of winning number combinations — like your Dad's birthday or how much tax the government takes out of your paycheck — then maybe you need *Lottomation*, a number generator and data base tracker. Although the program doesn't use any probability logic, it picks and tracks six lucky numbers for you so you can use them again.

It costs $14.95 (just over two weeks worth of daily tickets) and is available from Hot Data Software, 1021 Lincoln Blvd., Santa Monica, CA 90403 (213) 393-6405. —*BT*

MISS NG PIEC S

This is the second in our new series of charts from the *Miss ng Piec s* newsletter, edited and published by Robert ART Morgan. The charts are designed to let you compare at a glance (or at the most, two glances) programs of a specific type. If you'd like to subscribe to the newsletter, the price is $1 an issue; $12 annually. Write to Ramifications Unlimited, PO Box 619, Dept. MP1.2, Julian, CA 92036. Let us know what charts you'd like to see and we'll pass your responses on to Robert. *MacUser*'s new address is 110 Marsh Dr., Suite 250, Foster City, CA 94404. — *LK*

Draw Program "Band-Aids"

1. Use *Windows* 1.1 DA to add Windows menu item to *MacDraw* and *MacDraft*.
2. Use *Stepping Out* to add scrolling capability to *MacDraw* tools/select and to *MacDraft*'s select. It will also add 15 more levels of Zoom-In to all the above products, as well as split screen Zoom-Out.
3. Use *The Clipper* DA to help determine the size of an object in *SuperPaint*.
4. Use *McSink* 3.1 or *Clipboard Edit* (both Public Domain) to add CASE changing feature to *Cricket Draw, MacDraft, LaserPaint* and *SuperPaint*.
5. Use the Filled Rectangle tool to create "lines" as wide as you want.
6. Set reduce/enlarge to 400% in *MacDraw*'s Page Setup Menu to get font sizes up to 192 point.

MISS NG PIEC S

✓ - missing feature **Drawing Programs—What's Missing?**	Mac Draw 1.9.5	Cricket Draw 1.1	Mac Draft 1.2a	Laser Paint 1.1	Super Paint 1.0	Scoop 1.0
Multi-Page Drawings		✓			✓	
Open Multiple Files				✓		
Windows Menu Item	✓		✓	✓		
Hand Scroll	✓	✓	✓	✓		✓
Auto Scroll w/Tool	✓					
Auto Scroll w/Select	✓		✓			
Multi-level Zoom In	✓					
Ruler in inches				✓		
Ruler in centimeters				✓		
Ruler in picas/points	✓		✓	✓		
Ruler in pixels	✓		✓			
Movable Zero Point				✓	✓	
Show Size					✓	✓
Turn Off Redraw	✓		✓		✓	✓
Text Full Justify	✓		✓		✓	
Vary Text Style In Block	✓		✓		✓	
Text On Curved Path	✓		✓		✓	✓
Column Guides	✓	✓	✓		✓	
Maximum Font Size	48	255	72	511	127	127
Case Change		✓		✓	✓	
Subscripts/Superscripts	✓		✓	✓	✓	
Condense/Extend	✓	✓	✓		✓	
Leading						
Kerning	✓	✓	✓		✓	
Text Rotate 90x					✓	
Text Rotate 1x Increments	✓		✓		✓	
Edit Text At Any Zoom Level		✓				
Text Runaround	✓	✓	✓		✓	
Text Fill Object	✓	✓	✓		✓	✓
Text Distortion	✓	✓	✓		✓	
Color/Shade Text	✓		✓			
Freehand Tool				✓		
Bezier Curves	✓		✓		✓	✓
Smooth Polygons				✓	✓	✓
Draw Object From Center	✓	✓	✓	✓		✓
Duplicate Object				✓		
Align Object				✓		
Adjust Corners of Rectangle					✓	
Object Rotate 1x Increments	✓					
Fountain	✓		✓		✓	✓
Starburst	✓		✓		✓	
Shadow Effects	✓		✓	✓	✓	✓
Perspective	✓	✓	✓		✓	✓
Grate Lines	✓		✓	✓	✓	✓
Create Spiral	✓	✓	✓		✓	✓
Color Object	✓		✓			
Pantone Colors	✓	✓	✓		✓	✓
Number of Fill Shades	8	100	8	13	32	99
Number of Fill Patterns	27	0	55	35	96	39
Number of Pen Shades	8	100	8	13	32	99
Number of Pen Patterns	8	0	55	35	96	39
# of Line Widths	4	1980	8	104	8	8
Max Line Width	6pt	99pt	16pt	99pt	8pt	8pt
Arrowheads				✓	✓	✓
End Caps	✓	✓	✓		✓	✓
Join	✓	✓	✓		✓	✓
Open as DRAW		✓		✓	✓	✓
Open as PICT						
Open as EPSF	✓		✓	✓	✓	
Open as TIFF	✓	✓	✓		✓	
Save as PICT						✓
Save as EPSF	✓		✓		✓	✓
Save as TIFF	✓	✓	✓		✓	✓
Print Color Separations	✓	✓	✓		✓	
Print Cut Marks	✓	✓	✓		✓	✓
Print Registration Marks	✓	✓	✓		✓	
Print Fold Marks	✓	✓	✓		✓	✓



Weird Science

Even the Rumor Manager would have been ashamed to have made this one up. Luckily, he didn't have to; this one's for real. I'm not sure what's odder: the product itself or the fact that it was being demonstrated in Apple's booth at Seybold. The DataGlove Model 2 System is a bit difficult to describe, but graphic waldo seems to cover it. There's a glove, a box, and a computer. A person wears the glove and a skeletal on-screen hand mirrors his hand movements. Using the DataGlove, you can manipulate 3-D graphics, picking things up, turning them around, moving parts. Most of the people watching the demonstration were intrigued but puzzled as to the practicality of the glove — even though we were told that this technology is used by NASA and CAD/CAM applications. The best comment came from a *MacUser* editor, who was heard wondering whether the product was being developed for "any other bodily appendages." — *LK*

BUG OF THE MONTH

Chessmaster 2000 is a superb example of a computer chess-playing program. However, like many chess masters it has its own special quirks. To recreate one of these, try this:

1. In the Board menu select the 3-D mode (our quirk doesn't occur in the 2-D mode).

2. Again using the Board menu, rotate the board so that the black pieces are in the foreground (this error does not occur if the white pieces are in the foreground or if the board is viewed from either side).

3. Go to the Setup menu and choose Clear the Board. Now try to move the black rook (castle) onto the board. You get a rude beep and the rook refuses to move. All the other pieces move as they should.

Actually the procedure just described is not the only way to lock the black rook out; it's just the easiest. If the conditions are as described, it'll occur any time you try to bring a black rook on, although you can take them off.

Dan Kara of Belmont, Massachusetts found this interesting bug while trying out new ways to beat *Chessmaster 2000*. We've sent him our standard reward of $25. If we select and publish your bug, we'll pay you $25, too. Send your bugs, carefully wrapped, to Bugsy, c/o *MacUser,* Suite 250, 110 Marsh Drive, Foster City, CA 94404. Be sure to include all the details, including what *System* and *Finder* were being used when you found it and anything unusual about your software and hardware (besides the bug), so we can recreate it. — *H. D. Plant*



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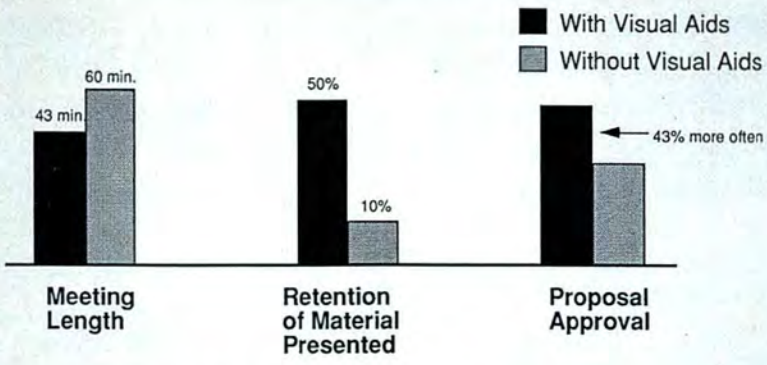
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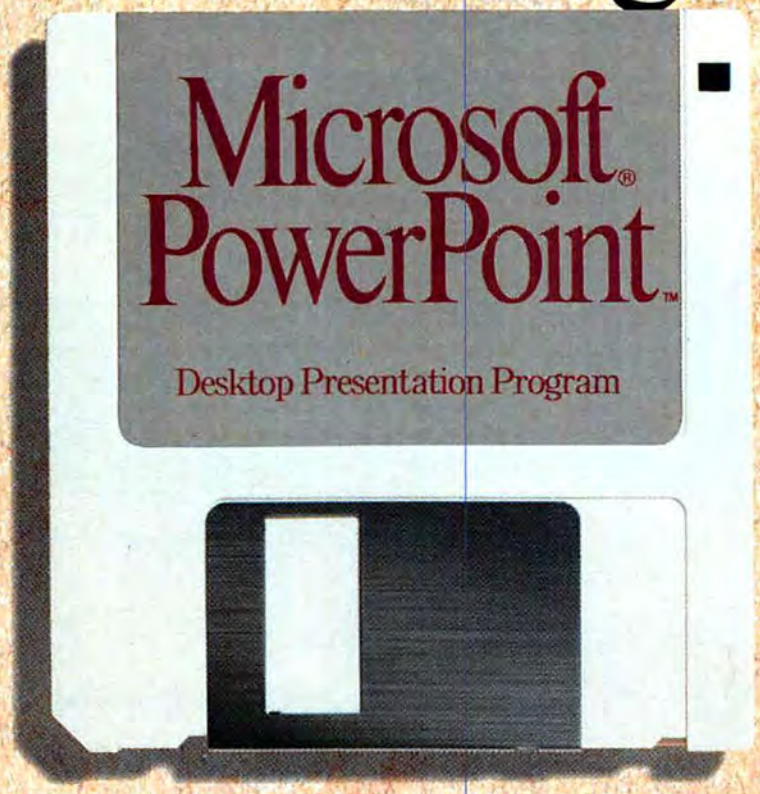


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3

Presenting:

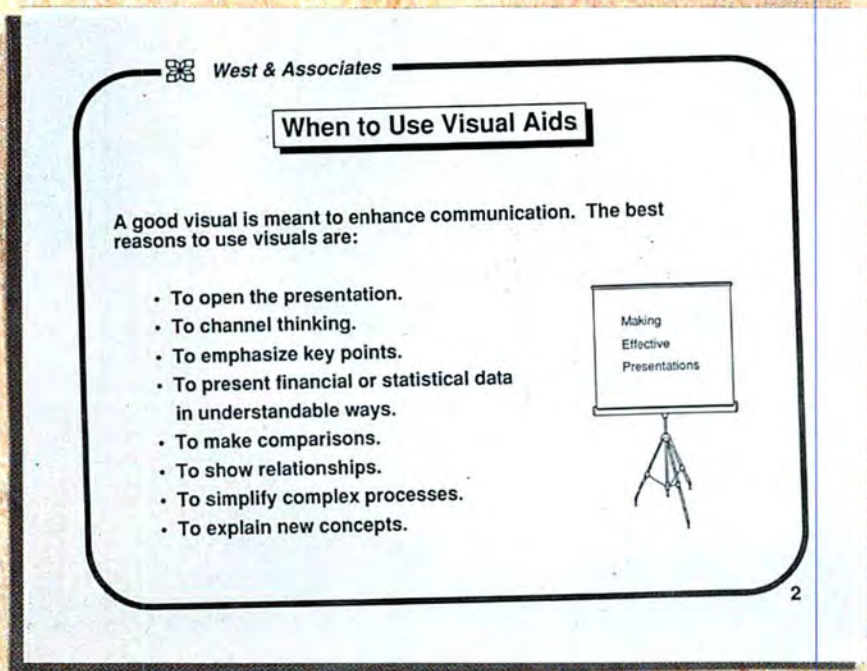


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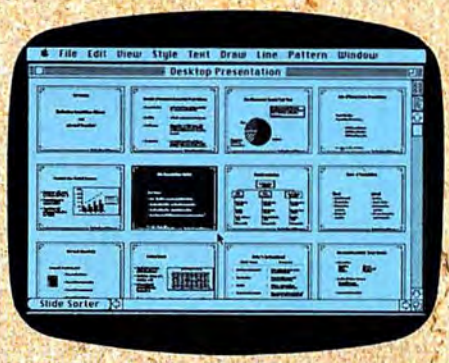
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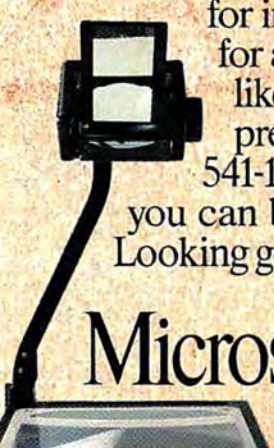


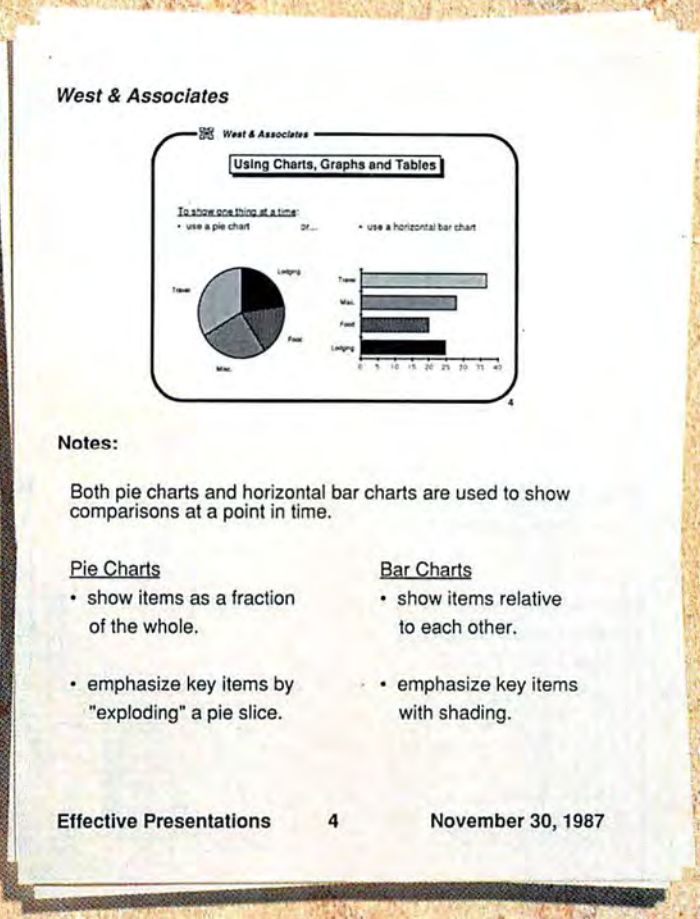
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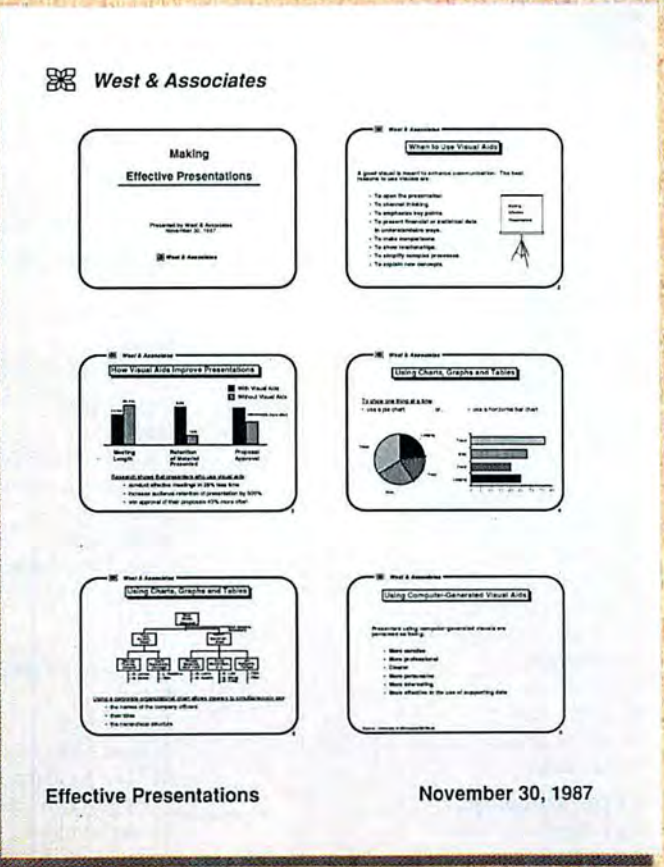
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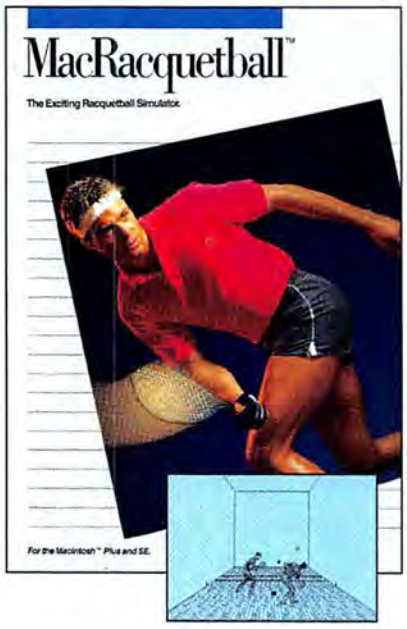
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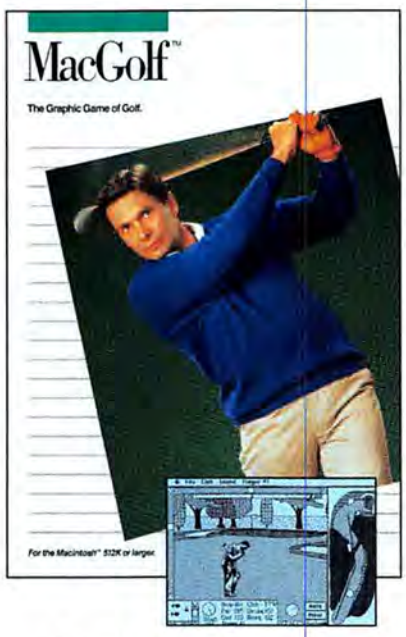


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by Robert R. Wiggins

Hyper Business Cards

Since before the Boston Mac Expo, the Mac community has been abuzz with talk of Bill Atkinson's *HyperCard*. Some third-party developers are fuming (one is even pouting and acting like a spoiled brat) because Apple is bundling it with all new Macs sold, while users are generally ecstatic for the same reason and agog at its potential. The new category of "stackware" is taking off with dozens of public domain stacks appearing on BBS systems and user group disks, and many commercial stacks are already on the market or under development.

There's no denying that *HyperCard* is a flashy product. Bill Atkinson has a well-deserved reputation after his successes with QuickDraw and *MacPaint*, and he hasn't let people down. *HyperCard* has much functionality in its drawing mode that he wanted to put into *MacPaint* but couldn't due to space constraints on the old 128K Macintosh. *HyperCard* also incorporates concepts from his early Rolodex-type programs that he tinkered with when the Mac was young. But it's the inclusion of *HyperTalk*, a *SmallTalk/Pascal*-inspired, English-like programming language that is generating the most excitement. Ordinary users, afraid of or intimidated about the idea of programming themselves, are discovering that *HyperCard* provides a programming environment that lets them express themselves in their stacks.

HyperCard, like any new product, is not without flaws. Users and stack developers quickly began to push the limits of the technology. But unlike *MacPaint*, which Atkinson walked away from to let others maintain, *HyperCard* remains Bill's baby, and he is committed to enhancing it. So while the first version of *HyperCard* may not offer what you need, let Apple know and you may get what you want in a future version. There's a lot of potential here.

Where does *HyperCard* fit in the business user's Mac life? Unfortunately, in its present form, it doesn't fit in much at all. One of the many stacks that come with *HyperCard* to demonstrate its capabilities is a combination address book/calendar/to-do organizer. For a simple business user, this may be adequate. But since the present version of *HyperCard* does not support a multi-user mode, many business users will be unable to exploit this fully. With a multi-user capability, some amazing stacks could be implemented for the business user. Most of the functionality of IBM's mainframe PROFS system could be offered for calendar management, conference room scheduling, simple internal memos, and the like, if a multi-user environment was available in *HyperCard*.

Another problem when looking at *HyperCard* in the business environment is memory. Because *HyperCard* is a standalone application, with no desk accessory for reviewing stacks, having it readily available in conjunction with other programs requires the use of *MultiFinder*. But a Mac Plus or Mac SE with 1 megabyte of memory is overwhelmed by this combination, and more memory is required. The small business may well upgrade, but the company with dozens or hundreds of Macs is looking at a pretty stiff tab to make the *MultiFinder* environment usable.

There are still plenty of reasons for *HyperCard* to succeed in the business world. For one thing, it's free with every Macintosh. This did a lot for *MacWrite* and *MacPaint*, and quickly established standards for information exchange. *HyperCard*'s system software aspects also do much to recommend it. By using a protected stack offering access to only certain applications and documents, less sophisticated (that is, untrained) users can be given a simple-to-understand operating environment which could offer productivity benefits (and decrease the likelihood of problems).

HyperCard is only an infant. As it grows and stretches under the guiding hand of Bill Atkinson, with appropriate input from its users, it could easily become a business standard. As Apple moves toward multitasking with products like *MultiFinder*, the ability to integrate *HyperCard* with other applications will strengthen it further. This product is definitely one to watch. As more stacks are designed and released, there may be even more reason for business users to use *HyperCard*. There are a lot of possibilities here, as *HyperCard* puts programming into the hands of the many.

ON THE FLOOR IN BOSTON

There was other good news for business users among the product announcements made at the Boston Mac Expo.

Apple's *ImageWriter LQ* finally offers letter quality at a workstation price, but with an AppleTalk option for shared use as well. Its 216 dpi resolution and color capabilities will make it a hit in finance and marketing departments for turning out those color graphs that management likes so much.

The *AppleFax Modem* will also come in handy for Macintosh-equipped businesses that do a lot of facsimile transmission. While a companion fax-scanner was not announced, it can only be hoped that Apple is at work on one. In the meantime, there are third-party scanners that can fill in pending such a product announcement from Apple.

In the desktop publishing/word processing field, Letraset announced and showed *Ready! Set! Go!* 4.0 and a scan-image processor called *Image Studio;* Ann Arbor demoed the latest beta version of *FullWrite Professional*, which looked impressive (though still unfinished); and WordPerfect Corporation was showing a development version of *WordPerfect* for the Macintosh.

Many new utility programs debuted at the show. The hot seller was *Suitcase* from Software Supply, which sold out three days running. CE Software showed an early version of their forthcoming *QuicKeys*, a keyboard enhancer that's especially good for those extended keyboards, and also showed the recently released *DiskTop* 3.0. Working Software



BRIDGET STARR TAYLOR

had several products, among them the recently released *Findswell,* an excellent tool for locating files from within Open dialogs.

Now that the Macintosh II has opened up the Macintosh market to hardware add-ons, there was a lot of hardware on display. The hit of the show was SuperMac's 19-inch Spectrum color monitor, which was being shown with a 24-bit monitor card (actually three cards slaved together) that elicited oohs and aahs from the crowd as they displayed many hundreds of thousands of colors on-screen at once. SuperMac also announced a color paint program, *PixelPaint,* which will be bundled with all Spectrum color monitors, as well as sold separately. Kensington released an ADB version of their popular TurboMouse, bringing trackball technology to the Mac SE and Mac II user.

Hard disks were plentiful in Boston, from external SCSI models like the SuperMac DataFrame and PCPC MacBottom, to internal models for the Mac SE and Mac II from CMS and PCPC, among others, to the novel BackPac 40 from Jasmine, which attaches to the back of a Mac Plus. There were removable hard disks, tape backups, and a range of storage products.

PINSTRIPE PICKS

If you ignored my recommendations and bought a Mac II, as I see from the sales figures that an awful lot of you have done, here are some products worth looking into if you use your Macintosh II for business:

SuperMac 19-inch color monitor: an unbelievably large color screen. Now available with very high-quality Sony picture tubes or high-quality (but cheaper) Ikegami tubes. Includes *PixelPaint.*

PCPC II 19-inch color monitor: also with the Sony picture tubes, but with a different video card.

DaynaFile: works with the Mac Plus and Mac SE as well as the Mac II, and allows access to IBM-PC formatted 5¼- and 3½-inch disks (depending on the model).

Pagemaker 2.0a: from Aldus. A major revision to a major program. If you do any page layout, this one's worth a long look.

Paper Plus 500: from The Laser Connection. This laser printer add-on works with the Canon CX engine that powers Apple's LaserWriter and many other printers. Has 500 sheet and envelope capacity to eliminate printer downtime when out of paper.



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Programs & Peripherals

Picks of the Month



MacTilt & MacTilt SE by Ergotron



MacTilt raises the Macintosh 4 inches, providing 30° tilt, and 360° rotation providing the increased height and adjustability needed to reduce glare, and to ease eye, neck, and back strain. *MacTilt SE* is designed especially for the Mac SE. The original *MacTilt* comes standard with a universal drive bracket and fits the 128K, 512K, and the MacPlus. Get *MacTilt* and bring your Mac up to eye level!

MacTilt or MacTilt SE **74.**
Mouse Cleaner 360° **14.**

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MaxPlus Mega (Expands the MacPlus to 2MB with CMOS Megabit chips. Not for use with big screens) **345.**
MultiSIMMs are Apple-standard, megabyte SIMMs for the MacPlus, Mac SE, Mac II, TurboMax and Turbo SE equipped Mac using low-power-consumption, surface-mounted CMOS chips:
MultiSIMMs 2MB Set (1MB to 2.5MB Upgrade) **629.**
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Stepping Out *(Macintosh Screen Extender)*	55.	Read It! *(For Image Scanners)*	189.
CE Software DiskTop 3.0	35.	**Personal Computer Peripherals Corp.**	
Central Point Software		HFS Backup V2.0	32.
Copy II Mac *(Includes MacTools)*	20.	**Softstyle** Printworks	49.
Centram Systems West, Inc.		**SuperMac Software** SuperSpool	
Tops For The Macintosh	125.	*(ImageWriter Print Spooler Utility)*	49.
Fifth Generation Systems		Diskfit *(Backup & Restore Utility)*	49.
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(Switch Multiple Sets of DA's)	32.	**Working Software, Inc.**	
		Findswell *(Document Finder)*	37.

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Cortland		with Smart Alarms *Special*	95.
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Greene, Inc. QuickDex		SmartScrap & The Clipper	
(Computerized Address Book)	24.	*(New Scrapbook DA)*	41.

Languages

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Borland Turbo Pascal	59.	Microsoft Basic Compiler 1.0	119.
Turbo Pascal Database Toolbox	59.	Microsoft Fortran Compiler 2.2	169.
Turbo Pascal Numerical Methods	59.	**THINK Technologies** Lightspeed C	99.
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Mainstay		**TML Systems** TML Pascal V2.0	68.
V.I.P. *(Visual Interactive Programming)*	85.	**Zedcor, Inc.** ZBasic 4.0	69.

Communications Software

Apple Computer MacTerminal	99.	**Think Technologies, Inc.**	
Compuserve Compuserve Starter Kit	24.	InBox-Starter Kit V2.0	
DataViz MacLink Plus with Cable	159.	*(3 Personal Connections)*	219.
Software Ventures		InBox-Additional	
Microphone 1.1 *(Includes Glue)*	119.	Personal Connections	79.

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Lookup by Working Software

Lookup is a new desk accessory spelling guide that can be accessed at any time to find the spelling of a single word, in any Macintosh program! Just highlight a word in your document and *Lookup* will check it against it's 93,000 word dictionary. If *Lookup* finds the word you hear a beep and can continue working. If it's unknown, a screen appears, allowing you to correct the word by using *Lookup's* suggestions. When a word doesn't look right, look it up with *Lookup*!



Lookup **31.**

MacCalligraphy 2.0 by Enzan-Hoshigumi USA



MacCalligraphy 2.0 is a totally new kind of software that can make you a master of the ancient art of calligraphy in a matter of minutes. With a choice of brush sizes and control over brush touches, shades of gray, speed of ink flow and "tail" lengths you can enter a realm of graphics creativity that simulates the medium of brush and ink on paper. *MacCalligraphy* simulates painting in the *real world* and can artistically give you results as personal and expressive as your own signature!

MacCalligraphy 2.0 **115.**
Japanese Clip Art Scroll 1 "Heaven" or Scroll 2 "Earth" **59.**
Japanese Clip Art "Borders" Scroll **69.**

ThunderScan 4.0 with Power Port by Thunderware

Ever since ***ThunderScan*** started zipping back and forth inside the ImageWriter, it's been famous for eye-popping graphics. Now, the most popular Macintosh scanner is better than ever with true halftone capabilities, special effects, and more. *ThunderScan* images can now be saved in a variety of formats providing complete compatibility with PageMaker 2.0 and other desktop publishing programs. Grace the pages of your publications with honest-to-goodness halftones from *ThunderScan* and it's software palette that lets you alter any image to your art's desire!



ThunderScan 4.0 with Power Port **199.**

Smart Alarms & Appointment Diary by Imagine Software



Smart Alarms is a unique desk accessory that makes it easy to remember things you can't afford to forget. With *Smart Alarms,* when a reminder comes due, your message comes up on screen on top of whatever application you're running. And, the included *Appointment Diary* makes it easy to write notes about important events as they occur. Best of all, the *Appointment Diary* is integrated with Smart Alarms, making it easy to set automatic reminders for all your upcoming events.

Smart Alarms & Appointment Diary **35.**
Multi-User Appointment Diary with Smart Alarms **95.**

Scoop by Target Software

Scoop is a new desktop publishing program designed to run circles around the competition. For one thing, *Scoop* can wrap text around circular or irregular shaped objects with a click of the mouse. *Scoop* also allows you to create text and graphics simultaneously from within a totally self contained program. It comes complete with the features you'd find in SuperPaint and MacDraw, an excellent word processing program, and a 140,000 word dictionary. Point is, even if you bought all the supplementary programs needed to "soup-up" another desktop publishing package it still wouldn't do what *Scoop* can do!



Scoop **379.**

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Disk Drives/Hard Disks/Upgrades

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AST-2000 1395.
20 MB External Hard Disk with 20-MB Cartridge-Tape Backup for the Macintosh Plus & SE.
AST-4000 3695.
74 MB External Hard Disk with 60-MB Cartridge-Tape Backup for the Macintosh Plus & SE.
Central Point
Central Point 800K External Drive 185.
Dove Computer Corporation
MacSnap Model 524 or 524E *(512K to 1MB Upgrade)* 139.
MacSnap Model 524S *(512K to 1MB Upgrade w/SCSI Port)* 239.
MacSnap Model 548 or 548E *(512K to 2MB Upgrade)* 369.
MacSnap Model 548S *(512K to 2MB Upgrade w/SCSI Port)* 459.
MacSnap 2s *(1MB to 2.5MB Upgrade for MacPlus or Mac SE)* 695.
MacSnap 4s *(1MB to 4MB Upgrade for MacPlus or Mac SE)* 1395.
MacSnap Toolkit *(Wrench, Case Cracker & Grounding Set)* 14.
Ehman Engineering
Ehman 800K External Disk Drive 189.
First Class Peripherals
Sider C-46 *(40MB Hard Drive with 60MB Tape for MacPlus/SE or Mac II)* 1629.
MacMemory, Inc.
Turbo SE *(16Mhz 68000 Accelerator for the Mac SE)* *Special* 395.
Motorola 68881 *(Math Coprocessor for Turbo SE)* *Special* 349.
MaxPlus Mega *(2MB Upgrade with 1MB Chips for MacPlus)* *Special* 345.
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Network Specialties
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Jump! Board 020 with 1MB Ram & 68881 1089.
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MacBottom HD-21 *(20+Mb SCSI Hard Disk)* 789.
MacBottom HD-32 *(32Mb SCSI Hard Disk)* 899.
MacBottom HD-45 *(45Mb SCSI Hard Disk)* 1189.
MacBottom 20 *(20+Mb Serial Hard Disk for Mac 512k & MacPlus)* 859.

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TurboScan *(Optically Scans & Digitizes at 300 Dots-Per-Inch)* 1395.
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Impulse *(MacNifty)* Audio Digitizer V2.0 w/SoundCap 149.
Koala Technologies Corp.
MacVision *(Digitizer)* 169.
New Image Technology
Magic Digitizer *(Mac 128/512k or MacPlus Version)* 249.
Summagraphics
MacTablet 12x12 size 379.
ThunderWare ThunderScan V4.0 with Power Port *(Mac 512K, 512K Enhanced, MacPlus, and Macintosh SE)* *Special* 199.

Accessories

Bech-Tech
Fanny Mac 69.
Cambridge Automation
Numeric Turbo 99.
Central Products
MacOpener *(All In One Mac Tool)* 16.
Curtis Manufacturing
Diamond-Surge Suppressor-SP-1 29.
Emerald-Surge Suppressor-SP-2 36.
Ruby-Surge Suppressor-SPF-2 55.
Sapphire-Surge Suppressor-SPF-1 47.
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I/O Design
Mac Luggage Available in Navy or Platinum Gray
Macinware Plus Carrying Case 69.
Macinware SE Carrying Case 79.
Imageware II Carrying Case 49.
Kalmar Designs
Teakwood Roll-Top Disk Cases:
Micro Cabinet *(holds 45 disks)* 14.
Double Micro Cabinet *(holds 60 disks)* 21.
Triple Micro Cabinet *(holds 135 disks)* 29.
Kensington
External Disk Drive Cover 8.
Mouse Pocket 8.
Mouseway *(Mousepad)* 8.
ImageWriter or ImageWriter II Cover 9.
Macintosh (Plus) Dust Cover 9.
Mouse Cleaning Kit w/Pocket 17.
Disk Drive Cleaning Kit 20.
Tilt/Swivel 22.
Universal Copy Stand 24.
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Printer Muffler 132 52.
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System Saver Mac *(Beige or Platinum)* 64.
A/B Box *(MacPlus Only)* 64.
Turbo Mouse 85.
Moustrak
MousePad 7"x9" Size 8.
MousePad 9"x11" Size 9.
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EasyNet *(Specify Din 8 or DB-9)* 29.
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Nutmeg 19" Monitor *(Displays Two Full Pages)* 1579.
Ribbons Unlimited
Available in Black, Blue, Brown, Green, Orange, Purple, Red, Yellow, Silver & Gold
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ImageWriter II-Four Color Ribbon 12.
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3M 3½" SS/DD Disks *(box of 10)* 14.
C.Itoh Color Disks SS/DD *(box of 10)* 22.

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Bulk *(Sony)* 3½" DS/DD *(10)* 16.
Centech 3½" DS/DD Color Disks *(box of 10)* 19.
Sony 3½" DS/DD Disks *(box of 10)* 19.
Fuji 3½" DS/DD Disks *(box of 10)* 20.
Maxell 3½" DS/DD Disks *(box of 10)* 20.
Verbatim 3½" DS/DD Disks *(box of 10)* 20.
3M 3½" DS/DD Disks *(box of 10)* 20.
C.Itoh Color Disks DS/DD *(box of 10)* 25.

Modems

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Smartmodem 1200 Mac w/Smartcom II & Cable 359.
Smartmodem 2400 449.
Transet 1000-128K 269.
Transet 1000-512K 359.
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InterBridge *(Connect Appletalk Networks)* 599.
Migent
Migent Pocket Modem *(ext. 300/1200 Baud)* 169.
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Chang Laboratories
C.A.T. Contacts•Activities•Time 239.
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Microsoft Microsoft File 1.05 110.
Nantucket Software McMax 199.
Odesta Double Helix II 339.
Multi-User Helix 439.
ProVUE Development
OverVUE 2.1 149.
Software Discoveries
RecordHolderPlus 45.

Business Software

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Bravo Technologies MacCalc 85.
Borland Eureka! The Solver 129.
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Cricket Graph 125.
Data Tailor
Trapeze 2.0 *(Spreadsheet/Color Report Generator)* 159.
Deneba Software Comment *(Attach Electronic Notes to Files)* 64.
Forethought PowerPoint 209.
Layered
Notes For Excel, Jazz, PageMaker, Microsoft Works or Word 3.0 *(each)* 42.
Legisoft/Nolo Press
WillWriter V2.0 31.
Lotus Jazz 179.
MacroPac International
101 Macros For Excel 49.
Micro Planning Software
Micro Planner Plus 299.
Microsoft Microsoft Works 1.10 189.
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Microsoft Chart 1.02 72.
Microsoft Excel 1.04 224.
Micro-Systems Software
Analyze! *(New Spreadsheet)* 99.
Satori Software Legal Billing 369.
Legal Billing II 539.
Project Billing 439.
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Bulk Mailer Plus 3.0 199.

Word & Outline Processors

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FullWrite Professional 169.
Apple Computer MacWrite 99.
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Laser Author 105.
Living Videotext More 149.
Microsoft Microsoft Word 3.01 239.
MindWork Software
MindWrite 1.1 179.
OWL International
Guide 79.
Guide Envelope System 99.
Symmetry Acta V1.2 38.
T/Maker Company WriteNow 98.

Spelling & Grammar Checkers

Aegis Development
Doug Clapp's Word Tools 42.
A.L.P. Systems MacProof 3.0 *(Requires MacPlus)* 115.
Batteries Included
Thunder! *(Interactive Spelling Checker)* 32.
Deneba Software Spelling Coach 3.0 *(Webster's/Medical/Legal/Hyphenation)* 64.
Spelling Coach 3.0 Professional *(Adds Definitions & Thesaurus)* 129.
Coach Merriam Webster's Thesaurus 2.0 39.
Lundeen & Associates
WorksPlus Spell 39.
Microlytics, Inc.
Word Finder *(Synonym Finder)* 39.
Working Software, Inc.
Spellswell Spelling Checker & Proofreader 2.0 42.
Spellswell Medical Dictionary *(35,000 Medical Terms)* 59.
Lookup *(Makes Spelling Suggestions)* *Special* 31.

Desktop Publishing

Aldus Corporation PageMaker 399.
Allan Bonadio Associates
Expressionist *(Equation Processor)* 52.
Boston Publishing Systems
The MacPublisher III 139.
Letraset Ready, Set, Go! 4.0 289.
ImageStudio *(Image Processing Software)* 289.
Postcraft International, Inc.
Laser FX *(Special Effects for Desktop Publishing)* 119.
Quark, Inc. QuarkXPress 499.
Solutions, International
Glue *(Adds "Print to Disk" Capability)* 41.
Super Glue *(Graphics Integration Software)* 59.
Target Software Scoop *Special* 379.

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New Enhanced Version III Modules!
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Rags to Riches Three Pack- *(GL/AR/AP)* 299.
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Digital, Etc.
Turbo Maccountant V2.0 259.
Migent In House Accountant 99.
Monogram Dollars & Sense 81.
Peachtree
Back To Basics Three Pack *(GL/AR/AP)* 139.
Survivor Software MacMoney *(Financial Planner)* 42.

Statistics Packages

BrainPower
StatView 512 Plus 179.
Cricket Software Statworks 75.
Systat
Systat 3.1 *(Specify Mac 512K, MacPlus, or Mac II)* 459.

Graphics Software

Altsys Corp. FONTastic 27.
FONTastic *Plus* 49.
Fontographer 2.2 245.
Ann Arbor Softworks Full Paint 53.
Apple Computer MacPaint 99.
Broderbund Print Shop 39.
Casadyware
Fluent Fonts 2.0 *(Two-Disk Set)* 29.
Fluent Laser Fonts Vol. 1-15 *(ea)* 48.
Deneba Software Canvas 1.0 *(Includes Desk Accessory)* 125.
Dubl-Click Software
World Class Fonts! *(Both Volumes)* 49.
WetPaint *(Both Volumes)* 49.
Enzan-Hoshigumi USA
MacCalligraphy 2.0 *Special* 115.
Japanese Clip Art Scroll 1 *"Heaven"* or Scroll 2 *"Earth"* *Special* 59.
Japanese Clip Art *"Borders"* Scroll *Special* 69.
LaserWare, Inc.
LaserPaint 319.
LaserWorks 199.
MacroMind VideoWorks II 119.
Miles Computing
Mac The Ripper, Orchestra of Fonts, People-Places-Things, or Taking Care of Business *(each)* 27.
Mindscape ComicWorks 48.
GraphicWorks 1.1 48.
Olduvai Software
Post-ART *(Three Disk Set)* 45.
Silicon Beach Software
SuperPaint 99.
Silicon Press 41.
Solutions International
The Curator *(Catalog Your Art)* 95.
Springboard Certificate Maker 35.
Symmetry PictureBase V1.2 44.
T/Maker
Click Art Letters I, Letters II, Personal Graphics, Publications, Effects, Business Image, Holidays or Christian Images *(each)* 28.
Click Art Laser Fonts: Plymouth, Bombay, or Seville *(each)* 46.

CAD Products

Apple Computer MacDraw 159.
Challenger Software
Mac 3D *(Enhanced Version 2.0)* 119.
Cricket Software
Cricket Draw 175.
Enabling Technologies Easy 3D 89.
Professional 3D 199.
Innovative Data Design
MacDraft *(Updated Version 1.2)* 159.
Silicon Beach Software Super 3D 199.

Educational/Creative Software

Baron's Baron's SAT 35.
Bogas Productions Studio Session 59.
Broderbund Sensei Geometry 64.
Calculus or Physics 64.
Davidson & Associates
Speed Reader II 39.
Math Blaster or Word Attack! 28.
Electronic Arts
Deluxe Music Construction Set V2.0 63.
1st Byte/Electronic Arts
Kid Talk, Speller Bee, First Shapes, or Math Talk 32.
Mathtalk Fractions, First Letters & Words, or Smoothtalker 32.
Great Wave Software
KidsTime, TimeMasters or NumberMaze 28.
Concertware+ 4.0 42.
Concertware+ MIDI 4.0 85.
Hayden MusicWorks 29.
Score Improvement System for the SAT 59.
Micro: Maps MacAtlas Paint Version *(MacPaint Format)* 32.
MacAtlas Professional *(PICT/MacDraw Version)* 129.
Mindscape Perfect Score SAT w/The Perfect College 46.
Nordic Software
MacKids Educational Programs *(each)* 29.
Passport Designs
Passport MIDI Interface 95.
Master Tracks Pro 259.
Rubicon Publishing
Dinner at Eight-Silver Palate Bundle 52.
Simon & Schuster Typing Tutor IV 35.
Springboard
Early Games for Young Children 28.
Easy as ABC 28.

Game Software

Accolade Hard Ball 24.
Activision Shanghai or Hacker II 24.
Hacker 16.
Portal 32.
Artworx Bridge 5.0 22.
Avalon Hill Mac Pro Football 30.
Broderbund Ancient Art of War 27.
Bullseye Software
Fokker TriPlane Flight Simulator 34.
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Electronic Arts Starfleet I 37.
Venture's Business Simulator 49.
ChessMaster 2000 or Patton vs Rommel 30.
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EPYX Winter Games or Sub Battle Simulator 24.
Hayden Software Sargon III 29.
Infinity Software, LTD.
Grand Slam Tennis II 34.
World Cup Soccer 27.
Go 23.
Infocom
Ballyhoo, Beyond Zork, Bureaucracy, Hollywood Hyjinx, Leather Goddesses of Phobos, Moon Mist, Nord & Bert, Plundered Hearts, Stationfall, The Lurking Horror, Trinity, or Zork I *(each)* 25.
Hitchhiker's Guide to The Galaxy 19.
Zork Trilogy 45.
Microsoft
Flight Simulator 1.0 32.
Miles Computing Inc.
The Fool's Errand or Downhill Racer 27.
Mindscape
Balance of Power or Crossword Magic 32.
Deja Vu: A Nightmare Comes True 32.
King Of Chicago or Shadowgate 32.
The Uninvited or Siboot 32.
Practical Computer Applications
MacGolf 2.0 or MacRacquetball 36.
MacCourses 34.
Psion
Psion Chess *(3D & Multi-Lingual)* 31.
Sierra On-Line
Space Quest 32.
King's Quest I, II, or III *(each)* 32.
Silicon Beach Software
Apache Strike or Beyond Dark Castle 32.
Enchanted Scepters 21.
Dark Castle 28.
World Builder 41.
Simon & Schuster
Star Trek *(The Kobayashi Adventure)* 24.
Sir-Tech Mac Wizardry 35.
Sphere, Inc.
GATO, Orbiter, or Falcon 26.
XOR Software NFL Challenge 69.

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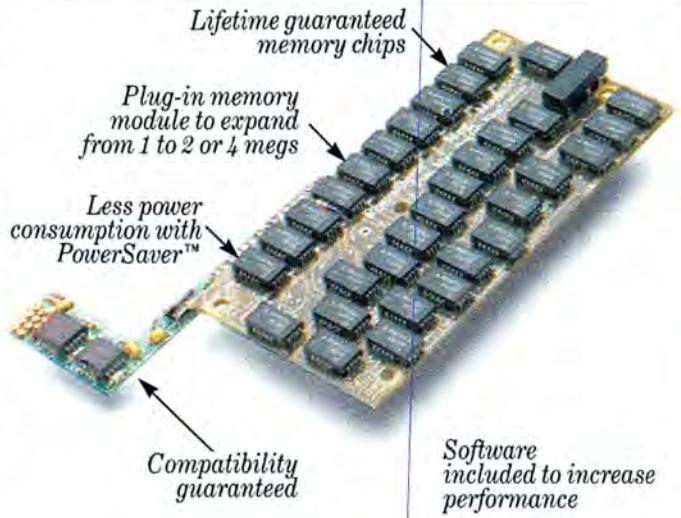
Brainstorm lets you upgrade quickly and easily by simply exchanging a plug-in memory module. You can even do it yourself.

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We're pointing out the fact that Brainstorm comes with a complete set of Performance Software™. Of course, most upgrades include utility software.

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Call today and get a free subscription to *Brainstorming*, the bimonthly newsletter that explains how memory upgrades work and gives you tips on getting the most from your Mac.

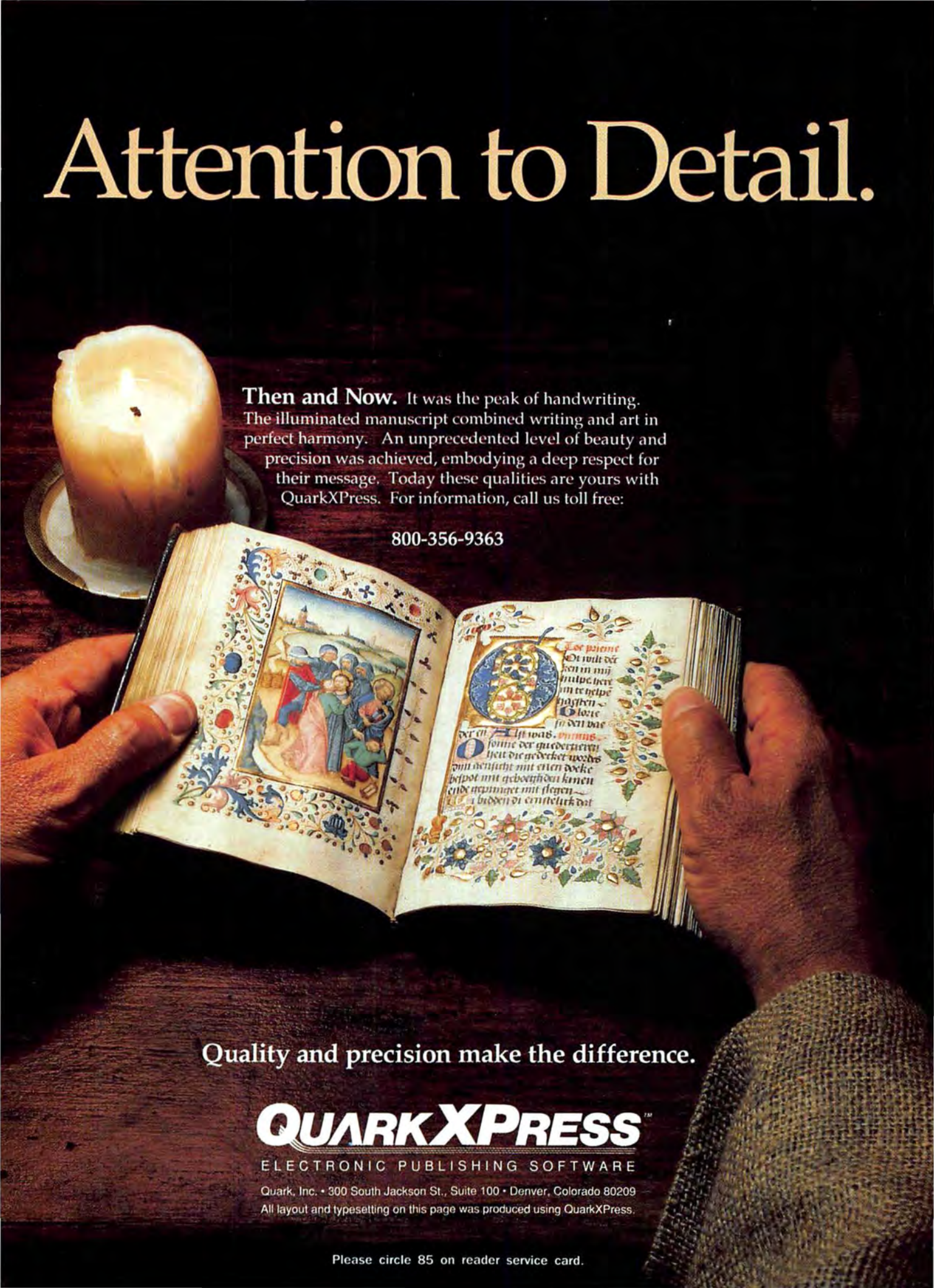
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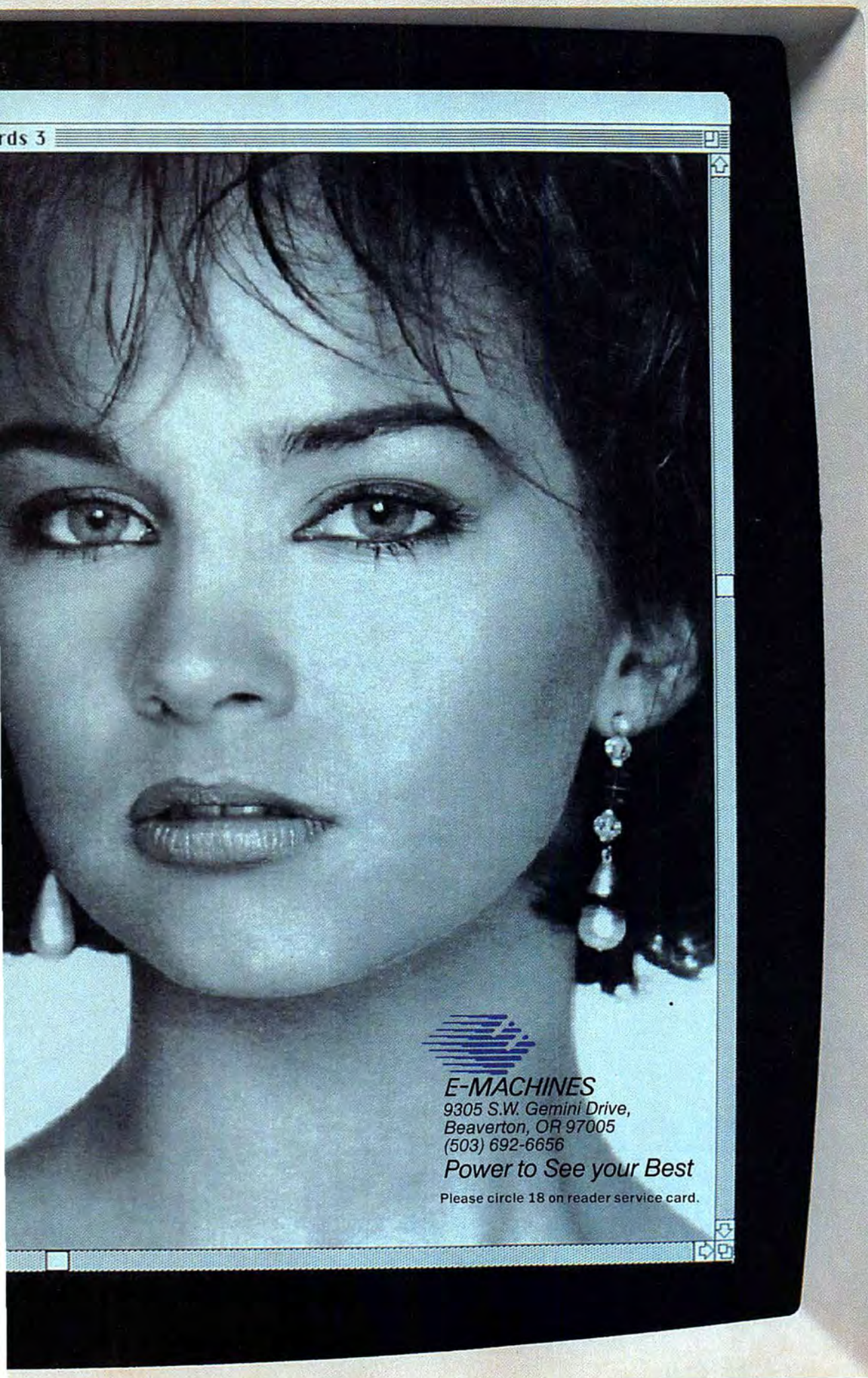
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Actual unretouched photograph of The Big Picture IQ™ screen

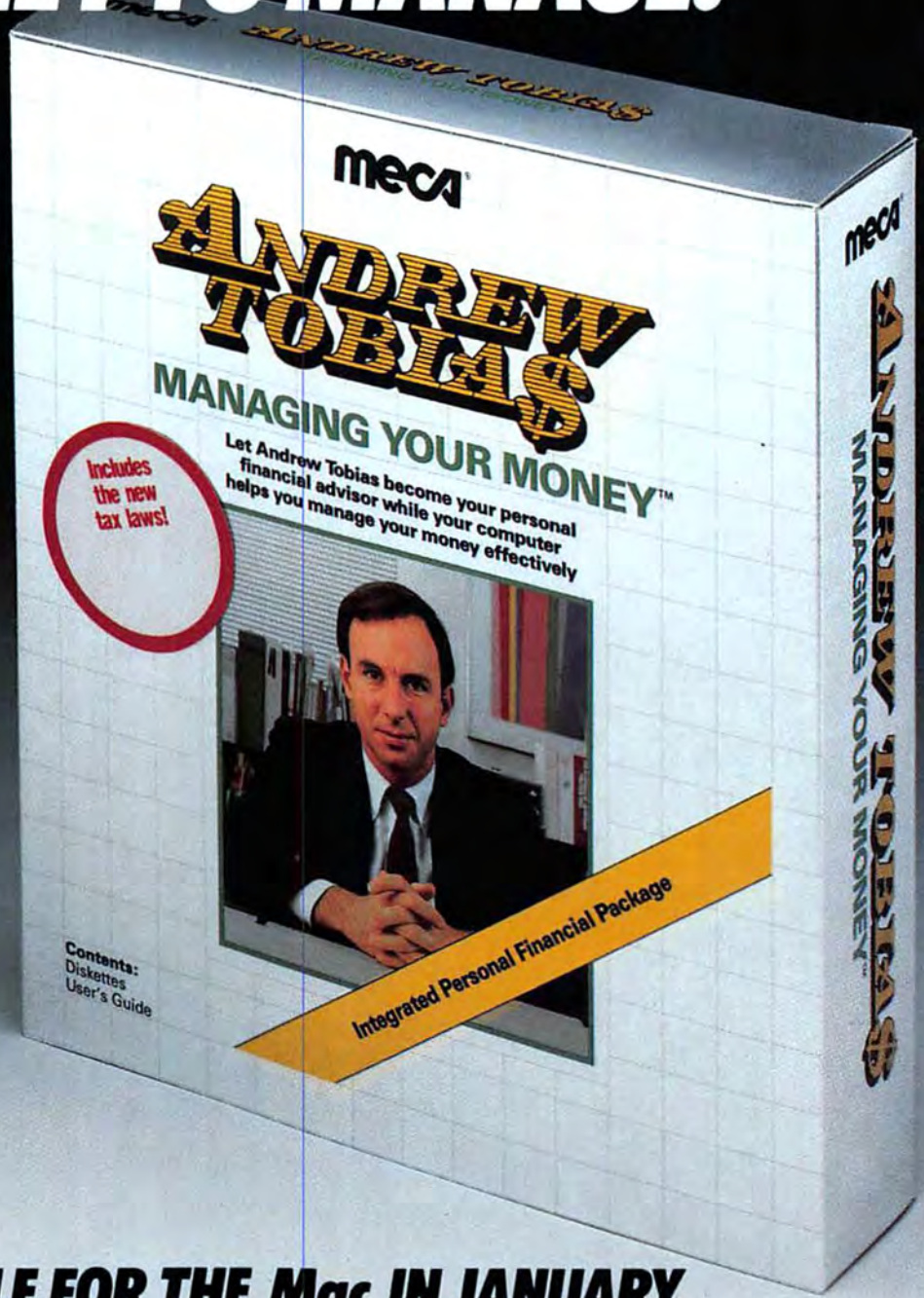

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by Dan Cochran

Answers From the Mac Team

Got a Mac Problem? Something that you'd like explained? Something you can't find the answer for anywhere else? Apple's Dan Cochran will answer your questions every month in this space. When the questions are too tough for him, he'll get the answers from other members of the Mac team. So ask what you need to know and get your answers straight from the source!

Send your questions to Dan care of MacUser, *110 Marsh Dr., Suite 250, Foster City, CA 94404. Dan will read all of your questions, but, unfortunately, he may not be able to answer individual queries.*

READERS RESPOND

In the September MacUser, I wasn't too encouraging about the possibility of connecting a Macintosh 400K drive to an Apple IIe. Marion Delahan of Bartlesville, Oklahoma alerted me to a new product from Central Point Software which just might be the ticket. For around $90, Central Point claims you can hook up a single-sided 400K Macintosh drive to a IIe using their Universal Disk Controller Card.

I haven't tested one myself but MacUser Labs has an evaluation unit on the way and either they'll report on it in an upcoming issue or I'll let you know what they discovered.

In the same issue I also discussed ways to allow a user to Set Startup from a particular document rather than a particular application. Donald Neff of San Jose wrote, telling me about a $19 product from his Neff Systems Group called MacPS *that allows you to write sophisticated startup scripts. Although the features for the product are too numerous to mention here you can call them at (408) 274-1110 and ask for one of their brochures.*

EXCUSE MEEE!!

Q. In the September issue of *MacUser* a reader asked if there is an easy way to prevent the disk that holds the application from becoming the current startup disk. You replied, "If you are working with a dual-floppy system there is really no easy way to prevent switch-launching between applications that are resident on disks with System folders." I beg to differ.

By using the *"Finder* alternative" *SuperStation* and launching the application from within *SuperStation*, the *System* where *SuperStation* resides will always remain the system in control. I have *SuperStation* on several of my application/System disks just because of this feature, so that I easily have complete say so over which *System* is operating.

Switcher can also be used. Launch *Switcher* on the System disk you wish to be the active *System* and then launch the application. This is a little more troublesome than using *SuperStation*, and *Switcher* also takes up more disk space (28K versus 18K for *SuperStation).*

Yet another method is to use the DA *DiskTop* and make the *Finder* (on the disk you do not want taking control) invisible. An invisible *Finder* will boot but will not take control away from another *System/Finder.*

As this is a problem most dual-floppy users face, Apple should at least be able to tell users how to do it. Apple should maintain a massive data base of tips on Mac system software use, in *HyperCard* form, updated regularly and distributed by MUG-BBS-dealer channels.

BRUCE LONG
TEMPE, AZ

A. *Thanks for your suggestions and workarounds. Neither I nor Apple claim to hold any monopoly on Macintosh technical information. It's hard enough to keep up with the nuances of our own System software let alone keep up with third-party solutions. Also please remember that many "workarounds" are made possible by users taking advantage of a "featured quirk" in our System software. We can't guarantee that such quirks will remain on future System versions, and as such, what might work today won't necessarily work tomorrow. As such, I often avoid giving tips that are predicated on the existence of transient or unintended system features.*

Your HyperCard *tips data base idea is great but most of the tips aren't generated from Apple — they're generated from users like yourself. If Apple, user groups, and BBSs could arrive at a standard card/linking format for such a stack, Macintosh HyperTip cards could be sent to some central location where the stacks could be built and where individuals could get stack updates on a regular basis. Sounds like a grect project for some entrepreneurial individual or leading Macintosh magazine.*

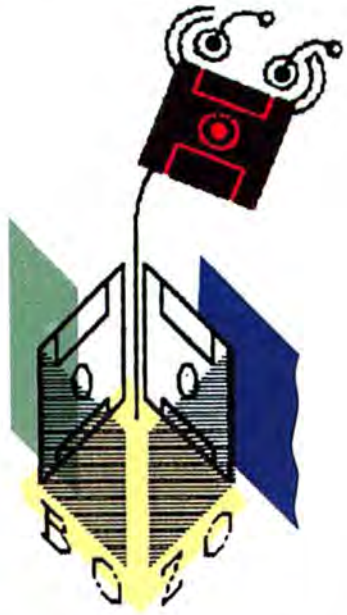
I can't help tossing in an editorial comment here: If you are worrying about which System *is in control then you don't have a hard disk. Without a hard disk you aren't going to be able to use even medium size* HyperCard *files. And if you don't have at least a megabyte of RAM, simply forget* HyperCard. *Or get more RAM. — SB*

IBM/IMAGEWRITER II

Q. I've been converted. My IBM PC has been relegated to my home primarily for electronic mail (until I can afford another Macintosh) and my Mac Plus has made the transfer to my office. I've also bought a used LaserWriter for the office and thus my ImageWriter II is now sitting next to my IBM PC at home.

Alas, I'm not sure how to connect the two. Any suggestions?

NANCY MILES
RANCHO MURIETA, CA



A. *According to Apple Technical Communications, Orange Micro makes a card just for that purpose. By installing their card in your ImageWriter II, you can hook it directly to the serial port of your IBM PC.*

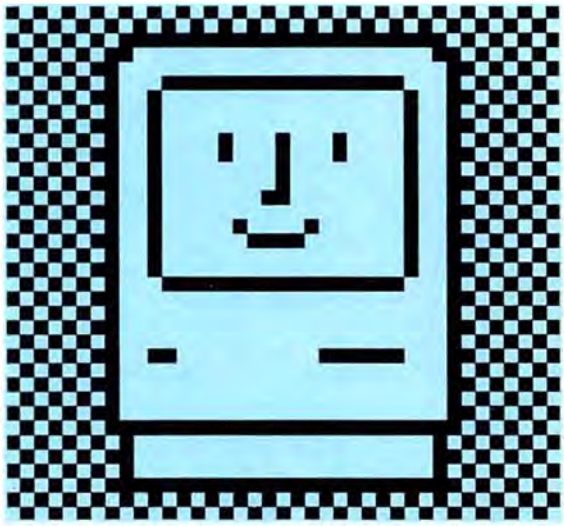
I understand that the card actually comes with the proper cable to make the connection. The card also allows your ImageWriter to emulate Epson printers and the documentation describes how to configure your serial port under DOS. Orange Micro is in Anaheim, California and their phone number is (714) 779-2772.

IMAGEWRITER AGAIN

Q. I know it's been said it can't be done but I *know* that can't be true. How does one imbed printer control characters in a *Word* or *MacWrite* document?

ANDY MARTIN

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Better yet, how about a hack on the ImageWriter driver to generate a dialog box which would set some of the options of the ImageWriter's special features?

For the information of other international users, Apple said in no uncertain terms that a US model ImageWriter would not work on 50 cycle line frequency. The specification in the manual says 60 cycles, not the usual 50/60 as with most appliances. Well, the internal transformer is rated for 50/60 cycles so I decided to give it a try. I use a 750-watt autotransformer to step down the 220V line voltage to 110V and have been running a Jasmine hard disk, a Mac Plus, and the ImageWriter off it for 3 months at an average of 8 hours a day without a hitch.

Since Apple refuses to sell international models in the United States this seems an acceptable solution for those who have to take our machines overseas.

H.R. BALLARD
DUNEDIN, NEW ZEALAND

A. *By the time* MacWrite *or* Word *are ready to send your document to the ImageWriter you wouldn't recognize it. The characters and graphics in your document have been transformed from ASCII character codes and PICT files to a bit-mapped representation of what is to be printed. If you were content to print in draft mode, only ASCII characters get sent to the printer. But between Write/Word and the ImageWriter driver itself, control codes either get stripped or ignored by the ImageWriter. So I'm still not aware of any Apple-labeled solution.*

The best third-party solution I know of is PrintWorks for the Mac, *version 3.1, from Softstyle. The Printworks IW driver dialog box replaces the standard Print dialog box and allows you to use many of the ImageWriter's unique capabilities, including built-in Printer NLQ fonts and color printing for the ImageWriter II. Take a look at the review in the August issue of* MacUser.

The original domestic ImageWriter I is designed to operate properly at 50/60 Hz and should work fine with your stepdown isolation transformer. The domestic ImageWriter II and the domestic ImageWriter LQ are still officially rated only for 60 cycle line frequency services. Many folks, including some Apple engineers, report satisfactory results on a 50 Hz service but beware: If you use a stepdown isolation transformer overseas on a 50 Hz service with a domestic ImageWriter II or ImageWriter LQ, the machines will print but: 1) you might encounter character spacing problems, and 2) the excess heat could shorten the life of your printer.

Jetsetting MacUser *readers would be much better off buying their ImageWriter IIs and LQs overseas rather than here in the U.S. A non-domestic ImageWriter II has an international power supply which can then be used domestically with a simple switch setting change.*

KANJI MAC

Q. Whatever happened to the Kanji Mac, the Mac Plus with Japanese characters built into it? I heard about it a year ago, but haven't heard anything since. Someone said that the Kanji Mac was the breakthrough to many foreign alphabets, possibly to Chinese, Yiddish, Arabic, etc. Does Kanji Mac exist — and what power supply does it use?

My daughter has completed 4 years of Japanese in an East Coast college and has a job offer in Japan teaching English to Japanese businessmen. Where could she get a Kanji Mac?

BRUCE GORDON
FAIRBORN, OH

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A. *In 1984 we characterized the Macintosh as an international machine. Well, it was if you happened to be one of the fortunate individuals who use the 26 characters of the Roman alphabet and left-to-right, top-to-bottom character progression. Unfortunately there are more than a billion people in the world who don't fit that description.*

It's now 1987 and things have changed dramatically. The Kanji Mac is alive and well as can be attested to by Apple's rapid growth and acceptance in the Japanese marketplace. The Kanji Macintosh as sold in Japan includes a special Kanji keyboard and international power supply. However, the Kanji Macintosh really isn't implemented in hardware. Two slick new pieces of Apple software, the Script Manager *and* KanjiTalk, *are what really opens the door for Apple sales in Japan and ultimately in China, India, Thailand, the Middle East, Israel, and other foreign countries.*

The Script Manager *is one of the building blocks used by Macintosh programmers. Using the* Script Manager, *developers can write programs independently of the language (or script) that will ultimately be in use. We are strongly encouraging all Macintosh developers to adhere to* Script Manager *guidelines, thereby greatly simplifying their international program conversion or localization efforts.*



When you buy a Kanji Macintosh you also get KanjiTalk, *special Macintosh system disks with Japanese versions of the* System *and* Finder. *The* KanjiTalk *software provides the necessary Japanese characters as well as a standard method of Japanese character keyboard input and lookup, regardless of the application you are using. And you don't really need a Kanji keyboard to take advantage of* KanjiTalk. *The Kanji System Software and documentation is available domestically from APDA (The Apple Programmer's and Developer's Association). The price is about $25 and you can reach APDA at (206) 251-6548.*

Kanji Macintosh machines aren't available from U.S. dealers, but are readily available in Japan from authorized Apple dealers. And with the Yen and U.S. dollar in fluctuation I can't tell you the current street price in Japan. The least expensive route is to take her domestic Macintosh Plus with her, pick up a version of KanjiTalk *from APDA or a cooperative Japanese Apple dealer, and if so inclined, buy a Macintosh Kanji keyboard from the same. She'll also need an isolation trans-*

ANDY MARTIN

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former to step down the 220V Japanese power to the electrical expectations of her 110V domestic model. The keyboard, transformer, and software shouldn't set her back more than $200 to $300. Better yet, why don't you keep her Macintosh Plus for yourself and pick up the tab for a Kanji Macintosh graduation present?

KID-PROOF SE

Q. When my 5-year-old son started *Kid'sTime* one Saturday morning while I slept he erased the hard disk on my SE. It appears that when he went to Shut Down he missed the button and stopped the cursor on Erase Disk instead. Not knowing what to do with the Alert Box, he clicked Initialize.

Is there any way to bullet-proof this disk from a 5-year-old, who enjoys the computer as much as I enjoy Saturdays without cartoons? Is it possible to deactivate the Erase Disk option when the hard disk is selected or to require a code name for the Initialize Disk option to work? I don't consider my dealer's suggestion to buy my boy his own Mac a viable alternative.

EARL F. JOHNSON, JR.
BEAUMONT, TX

A. *Your five-year old probably puts his disk in the SE's internal drive and then turns on the SE. This will make his disk the start-up disk, and as such, he'd be able to select and erase your hard disk from the* Finder's *Special menu. Following are five suggestions in no particular order.*

Solution one: Teach your child to turn on your SE first, boot from the hard disk, and then insert his disk and run his game software. Even when he's finished playing, your SE's hard disk will remain the start-up disk. Ergo, he won't be able to erase it (unless he decides to throw everything into the trash can). One potential caution — an application can request a switch launch, like Apple's Installer *program. But I don't know of any others that do.*

Solution two (for hackers only): Use ResEdit *to disable the* Finder's *Special menu on each game or educational disk you own. You can't disable individual items but you can disable the entire menu. Use* ResEdit *to open the* Finder's *Menu resources and open Menu ID=5, which corresponds to the Special menu. Take a look at the enableFlgs field. This item is a 32-bit longword that the* System *uses to determine enabled menus and enabled menu items. Bit 0 is set to 1 if the entire menu is enabled. To disable the menu you must set it to 0. You can do this by changing enableFlgs from $FFFFFFBF to $FFFFFFBE. Although the other bits are used to enable or disable individual menu items, you can't selectively disable Erase Disk because the* Finder *only uses the individual menu item bits at system start-up. As soon as a disk is selected, Erase Disk would once again become an enabled menu item. And if you disable the Special menu you also disable the Shut Down command. Not the best solution but an interesting piece of gossip.*

Solution Three: With a 5-year-old there are an infinite number of ways for things to go wrong. Kent Marsh Ltd., the same company who developed MacSafe, *has a product called* NightWatch. *According to the* Macintosh Buyer's Guide, NightWatch *will ask for a name and password upon hard disk boot up. All attempts, successful and unsuccessful, are recorded in a log. Access to the Macintosh's protected drives are also unsuccessful by startup from a floppy without the proper name and password. Kent Marsh Ltd. is located in Houston at (800) 325-3587.*

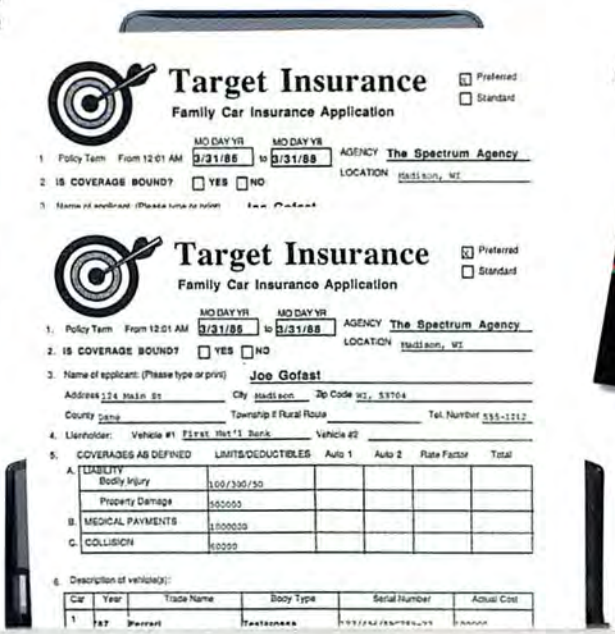
Solution Four: As an Apple employee and shareholder, I think your dealer's solu-

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tion is far superior to any of mine. But as the father of three — with both a 5-year-old, a hard disk, and a budget — I'm extremely sensitive to the underlying economic motives that would preclude you taking his/her suggestion too seriously.

Solution Five: Buy him an Apple II GS.

MAC II COLOR DEMOS

Q. How did you guys produce the Macintosh II color slide show demos that I saw at my local Apple dealer? Is the equipment and necessary software available from Apple or third-parties?

MICHAEL REID
SAN MATEO, CA

A. *The digitized color images you saw on the Macintosh II demo disk were produced using an Ikegami RGB studio-quality video camera and a Datacube frame buffer. We wrote some special software to convert the Datacube 24-bit images to dithered 8-bit images, stored them in Macintosh-readable format, and wrote the slide show program to sequence and display the images. Oh yeah...the tab on the above equipment only came to $50,000. We don't recommend it as a particularly effective solution.*

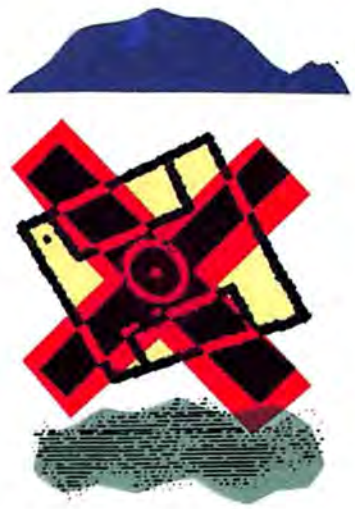
I'm not yet aware of any cost-effective video frame scanner solutions. Maybe the best bet today is Lightspeed's scanner and color printer which will produce 24-bit color images printed at 300 dots per inch. Lightspeed's offices are in Boston. You can call them at (617) 338-2173.

MACPAINT MEMORY

Q. I have a Macintosh 512K that was recently updated to a Macintosh Plus and after the modification my *MacPaint* (an old version) ceased to function. I receive a dialog box informing me "There is not enough room in the memory for *MacPaint.*" We took the Macintosh to our dealer who told us to put *MacPaint* in the System Folder which would correct this problem. Unfortunately, it did not. Could you please help me get my *MacPaint* working?

NAME WITHHELD BY REQUEST

A. *First, make certain you have a copy of the newest* MacPaint *(version 1.5). I don't understand your dealer's suggestion. We do know that* MacPaint *1.5 has problems with both the Clipboard and the Scrapbook on a Macintosh Plus when the application is not on the same volume as the*



System Folder. If MacPaint *is not on the System disk, then during a* MacPaint *cut and paste,* Finder *4.1 creates a Clipboard file on the disk where no Clipboard existed before. While this clipboard performs normally, the scrapbook is empty.* MacPaint *and* Finder *5.0 or greater and* System *3.0 or greater will generate a message to the effect of "having trouble writing the*

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☐ 151 Aristo—MacPaint-like DA, more ... $9
☐ 161 Talking Head:3-D animation, sound ... $9
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scrap." To work around the problem, put MacPaint *on the disk that the System Folder resides on.*

But this obviously isn't the cause of your problem. The only thing I can imagine is that you have your RAM cache setting in the Control Panel set too high. If this is the case you certainly wouldn't be able to run MacPaint *— or anything else of substance for that matter. Open your Control Panel from the Apple menu. See if your RAM cache is on. If so it's probably set to some outrageous number like 768K. Either turn it off or set it to something more reasonable like 128K. Reboot your System and try to launch* MacPaint *again. It's also possible that the contents of your parameter RAM were garbled during your System upgrade. You should also check the other settings and configure them to your preference.*

MACINTOSH II SYSTEM DIFFERENCES

I've received numerous inquiries about ROM and system differences between the Macintosh Plus and the Macintosh II. The draft version of *Inside Macintosh, Volume V* (available from APDA) describes most of these differences. For those of you who aren't inclined to wade through 600-plus pages, here's an excellent synopsis prepared by Apple Technical Communications.

NEW MACINTOSH II MANAGERS

The Macintosh II has a number of new managers in ROM and in system software that have no analog on the Macintosh Plus. A brief description of each of these new managers follows:

The Color Manager controls the task of translating an application's color requests to a color capable of being displayed by the current hardware. It keeps information about the display in a device record with information concerning the type of search mechanism to be used for color matching and inverting, as well as a handle to its pixel map.

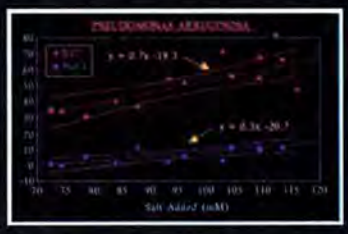
The Color Manager sets up an initial color table for each GrafDevice with default values, which correspond to the colors defined by the original QuickDraw. Color Manager procedures can also manipulate individual colors in a color table, so that an application can "fine tune" the mapping of the program's color description to the color displayed on the screen device.

Color QuickDraw includes the same types of procedures and calls found in "old" QuickDraw, but has been expanded to support color on the Macintosh II in GrafPorts, pixel maps, icons, polygons, and cursors. Color cursors and color icons are implemented through two new data structures, CCrsr and CIcon. Each type of polygon has a new fill procedure to permit color drawing. A typical definition is: Procedure FillCRect(r:rect; ppat: PixPatHandle);.

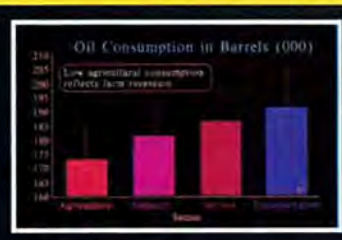
The Script Manager is used by TextEdit, or may be called by an application directly, to provide the means for an application to be written independently of the language (or script) in use. The Script Manager provides a consistent interface to Roman and non-Roman alphabets, those that use right-to-left and left-to-right progression, and alphabets with other than the "standard" 26 Roman characters.

The Start Manager controls the boot process on the Macintosh II. Once power is supplied to the Macintosh II and control has been transferred to the ROM, the Startup Manager determines which microprocessor is present, initializes ROM Managers, and checks for initialization code within the declaration ROM of all NuBus cards. The Start Man-

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ager then attempts to locate an appropriate startup device, and executes its boot blocks.

The Apple Desktop Bus Manager controls those devices on the Apple Desktop Bus (typically a keyboard and mouse). The ADB Manager supports calls to and from ADB devices and supplies information about keys pressed, mouse clicks, etc., to other managers.

The Slot Manager provides the means for the on-board ROM and logic to communicate with cards in the NuBus slots. The Slot Manager interprets the information supplied by NuBus cards, and arbitrates requests for bus mastership.

The Slot Manager checks each NuBus card's declaration ROM and sets up a Slot Parameter Block data structure, which can be accessed by other Slot Manager routines. Applications, or more likely, device drivers, may then request the Slot Manager to read data of varying lengths from a card in a NuBus slot.

The Macintosh II Sound Manager replaces the 64K and 128K ROM Sound Driver. All previous data structures, routines, and synthesizers are supported in the Sound Manager, and new routines have been added to take advantage of the new Apple Sound Chip on the Macintosh II logic board, including four standard synthesizers: the note synthesizer; the wave table synthesizer; the MIDI synthesizer; and the sampled sound synthesizer. A programmer may expand upon these synthesizers by defining a synthesizer or sound resource. The Sound Manager can call the new resources to play existing channels, using the rules defined by the new synthesizer.

Because the Macintosh II supports interrupts through all six NuBus slots, a Deferred Task Manager is needed to handle the interrupts in an orderly fashion. The Deferred Task Manager determines the appropriate time to service each of the requested interrupts, depending on the level of interrupt requested and other activity occurring within the Mac II.

The Shutdown Manager is designed to provide a consistent way for the Macintosh to be turned off or to be rebooted from the *Finder* as well as from within an application. It allows the *System* to perform some housekeeping prior to turning off or rebooting. Custom ShutDown procedures may be installed and removed through routines available in the ShutDown Manager.

Routines in the *Operating System Utilities* provide the ability to switch between 24-bit address mode, required for compatibility with existing Macintosh applications, and 32-bit address mode allowing access to the full 32-bit addressing capability of the MC68020 and NuBus slots.

CHANGED MACINTOSH II MANAGERS

A number of existing managers in the Macintosh Plus ROM have been expanded for use in the Macintosh II. A short description of these managers, and the changes, follows.

Fonts, controlled by the Font Manager, in ROM now include Monaco 9, Geneva 9 and 12, as well as Chicago 12. There are also 4- and 8-bit versions of Chicago 12 and a 4-bit Geneva 9 font. No new data structures are defined within the Font Manager, but the fontType structure has been modified to support color fonts. It now includes a field that indicates the depth of the font.

The Window Manager has a new data type, CWindowRecord, that has the same structure and size as the old WindowRecord, except the field port is now defined as a CGrafPort rather than the



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old GrafPort. Two other new types related to CWindowRecord are CWindowPtr and CWindowPeek. Another new data structure, AuxWinRec, stores the necessary information for drawing windows in color. Its primary function is to hold the handle to the window's individual color table.

The Control Manager has been expanded to include color support with the definition of a new data structure, AuxCtlRec, and its corresponding resource type cctb. These structures define a color table associated with the control and determine the border color, fill color, and text color for the control.

The Menu Manager now uses scrollable menus instead of QuickDraw to display menu text. Scrollable menus means that scrolling is possible with an up or down arrow at the top or bottom of the menu. The Menu Manager now implements up to five levels of hierarchical menus.

A new data structure, MbarProc, holds information pertaining to the menu bar. Menu items themselves have been disassociated from the menu bar definition to permit hierarchical menus to be handled more easily. Color menus are implemented through the Menu Color Information Table. A distinct MCInfoRec may exist for the menu bar and for each menu title and item. Within each MCInfoRec, you find RGBColor information for the item in question and its background color.

A TextEdit record may now have style information associated with it. A handle to a TEStyleRec structure can replace the TextEdit fields txFont and txFace. This style record holds an array of "runs," each of which may use a different text style (font, face, size, color, line height, and font ascent).

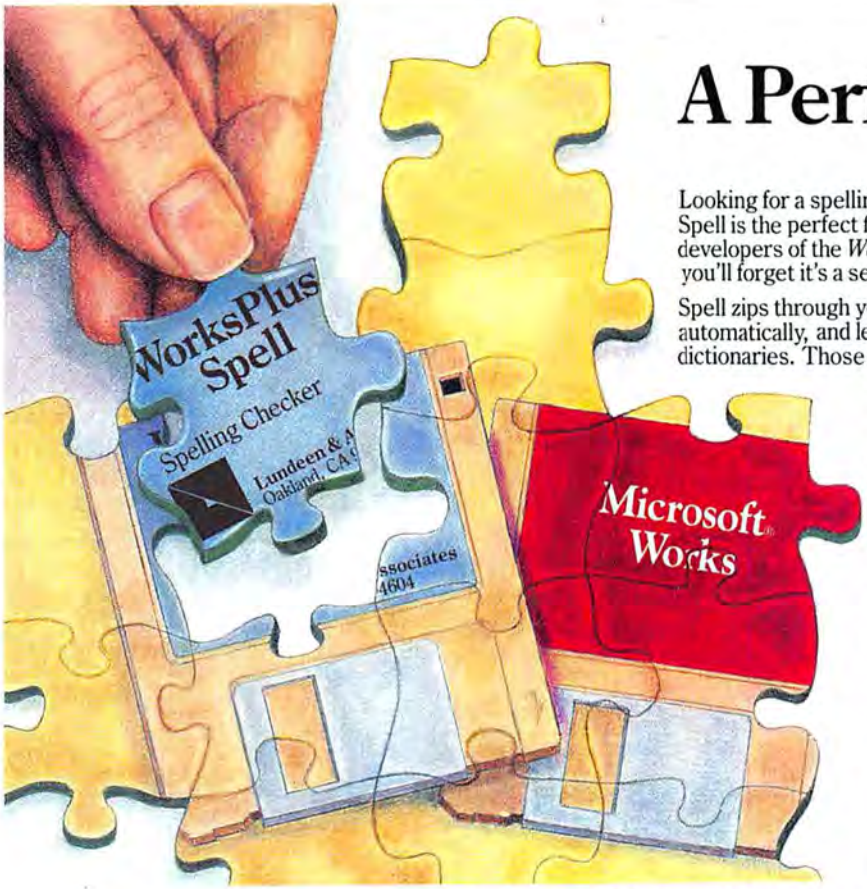
Style information can be passed from TextEdit to the application through a TextStyle record, which includes font, face, size, and color information. When the scrap is used to cut and paste style information, a new scrpSTElement type is used to transfer style and start character information.

The Dialog Manager has two new resource types, actb and ictb, that add color and style information to alerts and dialogs, and dialog item lists. These resources are associated with a dialog or alert by assigning them the same resource ID as the parent ALRT or DITL.



The *International Utilities Package* has been extended to support the new Script Manager. It now includes multiple resources within a given script, and new date and time formatting options. International scripts with non-Roman sorting rules may specify the details via hooks in this package, so that the many diacritical forms of the same letter may be treated for sorting purposes as equals regardless of diacritical marks, accents, umlauts, circumflexes, etc., e.g., an umlauted letter can be equated with an accented letter.

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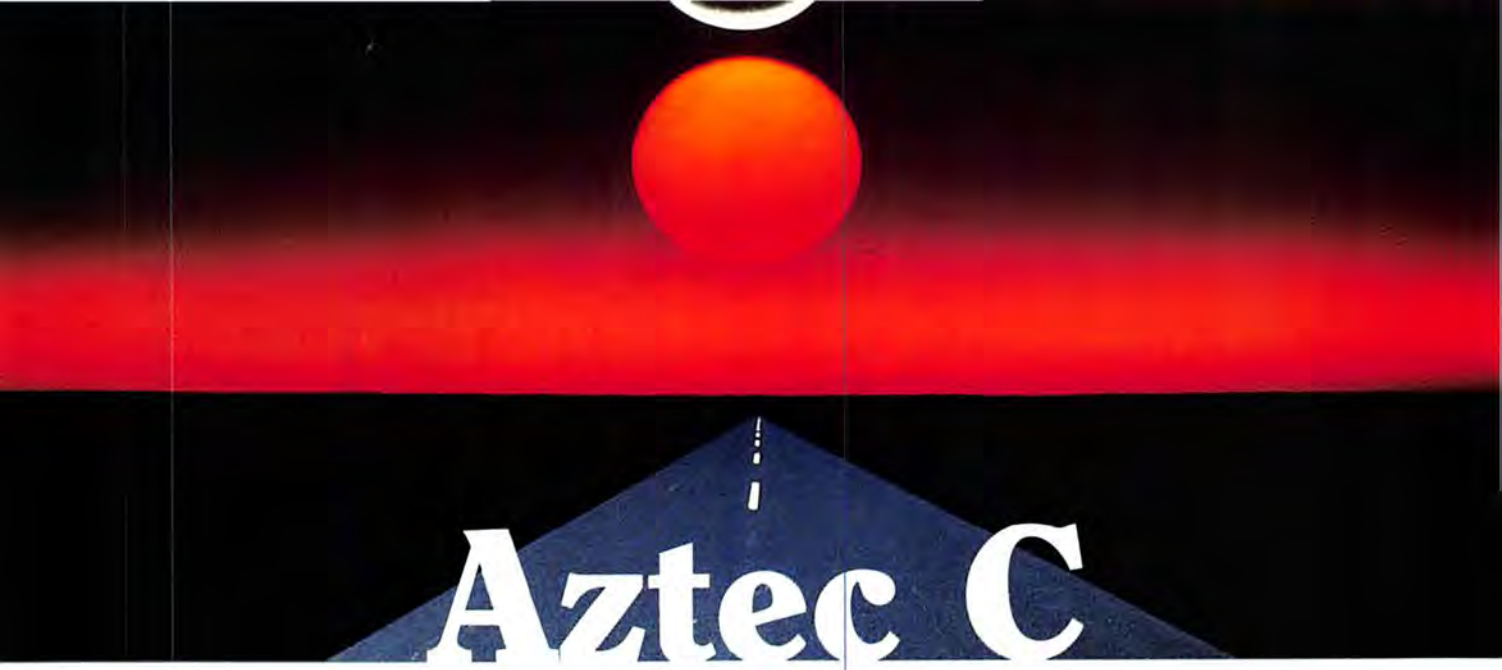
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The Macintosh II File Manager can be used with an external file system other than the traditional Macintosh code.

The Printing Manager has added one call to ROM: the print glue file (called PRLINK or PRSCREEN) has moved from the system file into the Macintosh II ROM.

The Device Manager has been modified to include support for NuBus cards, both as boot devices, and through the interrupt process. The Device Manager gains control of the Macintosh II bootup process shortly after video and boot drivers have been initialized. If the Startup Device has been set to one of the NuBus slots, and the configuration ROM found there contains boot code, the Device Manager will pass control to that NuBus device. If the Macintosh II continues its boot process from a Macintosh disk, the Device Manager will search all NuBus slots, looking for device drivers in the configuration ROM of each NuBus device. Any that are found there are installed into the system heap and initialized for later use by an application.

The Device Manager is the software interface for tracking the interrupt queue, determining the priority level that is proper to address, and, if necessary, posting an error when the interrupt cannot be serviced.

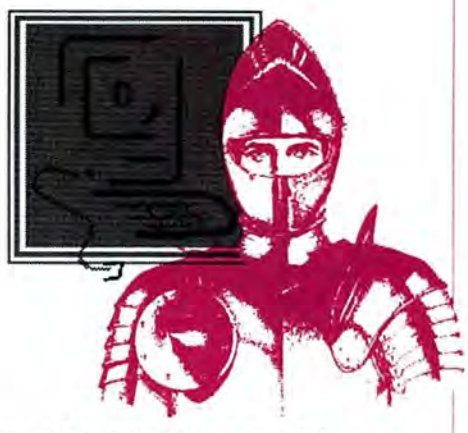
The SCSI Manager has also been modified. The Macintosh II and Macintosh SE ROMs implement a SCSI "blind" transfer mode. The types of SCSI drives used in these computers may support hardware handshaking, when blind transfer mode will result in faster transfer rates.

The AppleTalk Manager supports several changes to its code to assist servers, workstations, and spoolers: The node number of the computer may be requested in the server range. Packets may be sent to one's own node, or through a client-specified socket. The Name Binding Protocol can now accept multiple active requests. An Echo Protocol and an AppleTalk Session Protocol have been added. An Extended Protocol Package (XPP) combines portions of the AppleTalk Session Protocol and AppleTalk Filing Protocol.

The Vertical Retrace Manager has been changed slightly to take into account the flexible video interface on the Macintosh II. Since certain tasks on the Macintosh depend on the vertical retrace interrupt that occurs on the Macintosh 60 times every second, the Macintosh II must continue to supply that signal. The Vertical Retrace Manager can attach tasks to that pseudo VBL signal.

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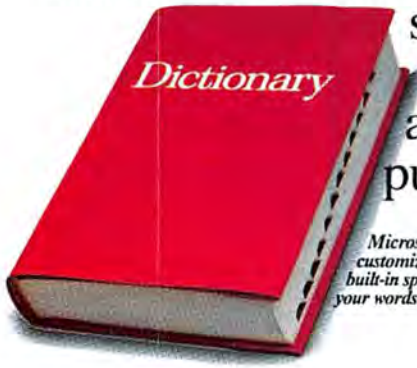
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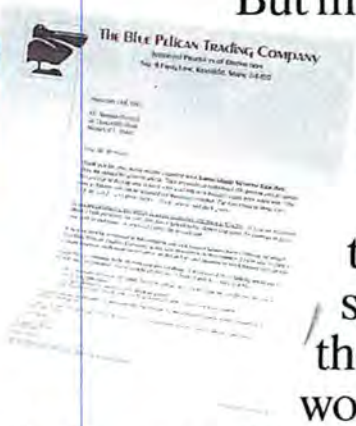
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POWERSTATION ★★★★★



List Price: $59.95. Published by Software Supply, 599 N. Mathilda Avenue, Suite 210, Sunnyvale, CA 94086. (408) 749-9311. Not copy protected.

The *Finder* is not always the best way to manage your applications and documents. Apple knew that from the beginning and created the ability to have a *MiniFinder* right in the *Finder*. Apple's *MiniFinder* was the first alternative *Finder* or *Finder*-substitute. And while it worked, it was very limited. Other people started creating their own *Finder*-substitutes. One of the most popular of these was Steve Brecher's *WayStation*, which he released into the public domain.

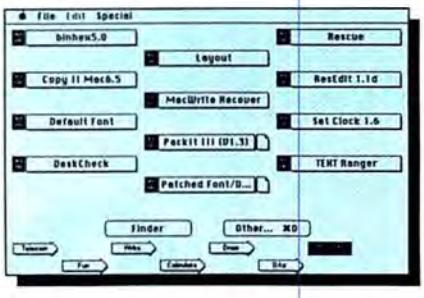
As good as *WayStation* was, it wasn't good enough for Brecher. It didn't work with everything (to Brecher, that's a seriously all-encompassing term) and it was too limited. It didn't hold enough applications and it could directly launch only applications, not documents.

Now the successor to *WayStation* has appeared: *PowerStation*. This is no longer a free, public-domain program, but a commercial product with full support. And it's worth its price.

PowerStation lets you set up up to 16 pages of application, document and DA boxes. Each page automatically expands to take advantage of the full size of whatever size screen you are using. Each individual box can be dedicated to an application, a document belonging to an application, or an accessible (that is, in the *System* or through *Suitcase*) DA. A particular item can only appear once on each page, but can, if desired, appear on each page.

The small icon to the left of the main box is where you can copy, cut, paste, or swap the box with Clipboard. Boxes, with their attendant small icons can also be dragged to other positions on the same page. If there is a small icon to the right of the main box, that means the application has documents. You select and deal with documents through this icon. Various markings on it indicate whether or not there is a default document and how you have chosen to deal with that application's icons.

While all of the program's operations are covered in the complete, if somewhat intimidating, manual, you should be able to handle *PowerStation* intuitively. There's a lot it can do (and do far more quickly than the *Finder*). One of its real strengths is its ability to remember where everything entered into it is. And if it doesn't know where something is (if, say,



you moved it), you simply select the Find All Installed Files command and *PowerStation* does the job for you. Another strength that it and it alone has is the ability to print, with one command, multiple files that reside in multiple folders and even multiple disks.

PowerStation has a built-in screen blanker very similar to *Pyro!* and also comes with a copy of *Pyro!*, the very best Macintosh screen blanker. All *PowerStation* functions are easily and simply controlled from its menus and most have command key equivalents for the menu-shy.

For all that, *PowerStation* isn't for everyone. If you only have a few files, or a flat and orderly arrangement of files on a hard disk desktop, *PowerStation* will not gain you much, and will simply be one more application you need to master. If, however, you have a hard disk with applications and documents buried many layers deep, and lots of files, then life will be faster and more efficient if you let *PowerStation* take control. — *SB*

MICROTEK MSF-300C IMAGE SCANNER and MS-SCSI/C ADAPTER ★★★½



List Price: scanner, $1895; adapter, $295. Microtek Lab, 16901 S. Western Ave., Gardena, CA 90247. (213) 321-2121. Comes with VersaScan Plus. Software not copy protected.

It was only a few short months ago that the choice between a flatbed or a drum-type scanner was like that of mimeograph machines versus copiers twenty years ago — it wasn't technically impossible for the flatbed, only very expensive. Now a slew of new affordable flatbed scanners have made it financially feasible to digitize artwork without bending the original. Microtek's 300 dots-per-inch scanners stand out from the pack, if for no other reason than you can buy them under no less than three different brand names.

But the difference with the Microtek MSF-300C is that it comes with *VersaScan Plus*, which *is* versatile, if not always reliable, scanning software. The initial setup is easy. Remove the packing foam from the scanning head, plug in the cable and choose the model number from the Model menu in *VersaScan Plus*. Make sure that Microtek sends you the right

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A quick look at Outlook

It's a "thinking" tool that lets you organize, re-organize, and gather your thoughts while you write.

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Outlook lets you incorporate both text and graphics into your outlines and allows you to work on several different outlines at the same time.

A fast scan of MacPlan

MacPlan is a highly visual spreadsheet that pictures your numbers without numbing you with numbers.

You can do graphs like bar charts, stacked bar charts, pie charts and line graphs.

MacPlan includes 12 *free example* templates and lets you paste graphics and data right into your Outlook documents for professional results.

> "A treasure chest of useful DAs. Outlook alone, the outliner desk accessory, is worth the price of the package . . . MacPlan, the spreadsheet DA, is terrific, and it does charts."
>
> *Doug Clapp, MacUser*

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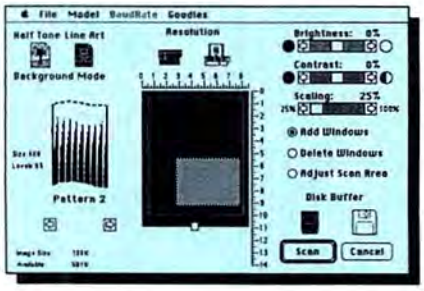
BORLAND

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cable. They do a big business in the IBM market and sent me the wrong connector by mistake.

When scanning an image you can select between a line art or half tone mode, and you can mix the two modes by defining windows within a scanned image. In the half tone mode you have a choice of eight patterns or grain sizes. Higher settings have more varied gray levels, but less detail. Vice versa for lower settings. Brightness, contrast and scaling are set on a percentage basis using sliding markers. Settings can be saved and loaded, and a default can be established.

Scanning takes a lot of memory — a meg of RAM at least. But VS has the option of saving an image to either RAM or to disk. This is especially handy when you want to save your RAM space for use with the Clipboard to import and export graphics.The program tells you how



much RAM you have available and how much an image is going to take. If there is not enough RAM, *VersaScan Plus* automatically changes the buffer to your hard disk.

After choosing your options, just click Scan, and the MSF-300C begins its run. Here's where the MS-SCSI/C adapter makes a big difference. (Without it you have to hook up the scanner through the modem port.) I scanned the same image with identical settings without the adapter in 1 minute 20 seconds. With the adapter it came in at just under 20 seconds.

An optional scanning mode is Copyscan which sends the image directly to your laser printer without taking the time or memory to save it — in effect turning your computer and scanner into a copying machine.

After scanning, the image pops up on the screen ready for graphics editing. This is the "Plus" in *VersaScan Plus*. The Tool palette selection includes such standards as Pencil, Brush, Fill, Line, Grab, and Crop. Other options are shape tools like Rectangle, Polygon, Oval, and Free Form.

A wide variety of fonts, sizes, and styles are available for text, and there are some 38 different choices for borders and fill patterns. You can edit in different views — from Full down to an Eighth and in FatBits mode. The Windows menu allows you to Hide the Tool palette. *VersaScan Plus* includes an Undo function if you mess up.

All of this control would be wasted, however, if you couldn't import and export scanned images into a variety of formats. Images can be saved in five different ways including: TIFF for importing to *PageMaker* version 2.0 and other programs supporting this format; *VersaScan Plus,* which can be used in *PageMaker* 1.2; *MacPaint* (part of the image is cut off this way); PostScript; and GPostScript for output to high resolution typesetting machines (such as the Linotronic).

But *VersaScan Plus* isn't without its minuses. Minor bugs make it a bother. For instance, under certain conditions you can't use the Scrapbook. But known bugs are noted in the Update Notes found in a *MacWrite* file on the disk. The Update ends with the cheerful, if slightly unnerving, phrase "Have Fun...Ha Ha."

For $95 a year, you can get immediate upgrades to the software and have "first class" tech support. Without it, phone support is still available. On-screen help is accessed through the Apple menu as a DA. And perhaps because of that help, *VS* wouldn't let me access any of my nonstandard DAs, like *InterMail.*

The MSF-300C is a solid machine, and *VersaScan Plus* is evolving into a good program for manipulating the data. The whole setup is especially handy when your needs call for scanning original artwork or books and magazines that can't be fed around a drum. — *BT*

LOOKUP ★★★★



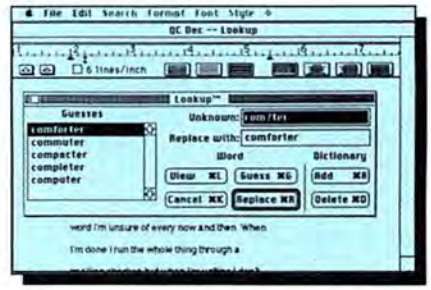
List Price: $49.95. Published by Working Software, 321 Alvardo, Suite H, Monterey, CA. (408) 375-2828. Not copy protected.

Lookup made me rethink spelling checkers. Not whether or not I need a spelling checker (I surely do), but what they are and how they work. *Lookup* lets me easily and quickly check any particular word pretty much on the fly. That's what I like to do. I just want to check a word I'm unsure of every now and then. When I'm done I run the whole thing through a spelling checker, but when I'm writing I don't want that sort of interruption.

Lookup uses the same big dictionary the well-respected (and deservedly so) *Spellswell* does. If you have both programs they can share dictionaries.

Lookup is an ordinary DA, so you install it in your *System* in the ordinary manner or place or rename it so that *Suitcase* will take charge of it for you. Then you simply open it once from within an application.

Checking a word is then simply a matter of selecting it and pressing the Option, Command, and tilde keys (they're all in a row on the new ADB keyboards)



at the same time. This is where my only tiny problem with *Lookup* arises and it's totally attributable to my own faulty typing technique. I sometimes hit the tilde key slightly before the other two and thus replace my suspect word with a ~ . No problem, Undo works perfectly here.

Lookup claims to work with most word processors, data bases, spreadsheets, and other applications. Every program I tried worked. The concise, but complete and very well-written manual says there are a few programs that allow you to use *Lookup,* but do not allow the transfer of a highlighted word to it, or the transfer of a replacement word from it. I couldn't find any such programs. The on-screen help consists simply of one-line explanations of *Lookup*'s menu items. It's not real useful.

Lookup can be used on any Mac, but as it is a rather large DA and uses a large dictionary, it is best used (as are all spelling checkers) in conjunction with a hard disk. If you don't have a hard disk it must actually be on each System disk. You do, however, have a choice of dictionaries: a small one of 60,000 words and the full *Spellswell* 93,000 word dictionary. Use the biggest one you have room for.

The dictionary and checking mechanism are the same as *Spellswell*'s (at least externally). Add and delete words to your dictionary with simple commands, either in a dialog or from the menu or from the keyboard. And all of *Spellswell*'s intelligent checking of capitalization, abbreviations, contractions, and diacriticals is retained.

You always have the option to go into the dictionary and browse. Select VIEW, type the first few letters of a word and you get that portion of the dictionary in a scrollable window. Guess suggests words based on a word with a question mark in what you enter. For example, "com?ter" suggested comforter, commuter, compacter, completer, and computer.

Lookup is a real writer's program, designed for the way writers work. You'll want to always have it available. And there's a way. Get Ron Risley's public domain program called *Immortality*. Hack *Immortality* with *ResEdit* (how to do this is in the *Immortality* docs — or have a friend do it) so *Lookup* is always on call. That's what I did the first day I had the program. It's too valuable to be hidden away. — *SB*

KLONDIKE ♦♦♦♦♦



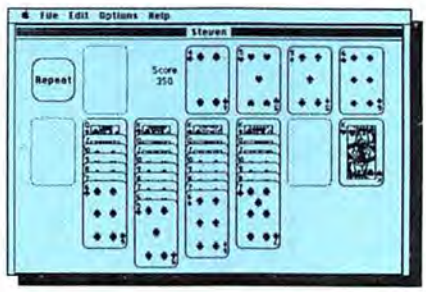
Shareware: $10, suggested donation. Published by Unison Software, 415 Clyde Avenue, Mountain View, CA 94043. (415) 968-7511. Version 3.3 reviewed. Not copy protected.

It was the first commercial game marketed for the Macintosh, way back in early 1984. And it wasn't a roaring success. In fact, the original issue of *Klondike* did so badly, it was pulled off the market.

Eventually, the program's author, Michael Casteel, released a new version of the game — first into the public domain, and then with substantial improvements, as shareware. And as shareware, thanks to a brilliant scoring system, *Klondike* has finally achieved widespread popularity.

On the face of its superbly rendered cards (drawn by Dave Elward), *Klondike* is the simple and common version of solitaire known most commonly as Klondike. When you start a game, you see the basic layout of Klondike solitaire in the Game window: The "deck" is in the upper left corner, the four "foundations" are to the right of the deck, and the seven columns of the "tableau" are below them. As the game begins, *Klondike* deals twenty-eight cards from the deck into the tableau. The number of cards in each pile increases from one to seven from left to right. The top card of each column is face up, the rest face down. You play by clicking on a card or pile of cards and then dragging the card to where you want it. Illegal moves are impossible. You can elect to turn over three cards from the deck at a time or one.

If that's all *Klondike* was, it'd be a nice, but unexceptional game. What sets it high above the crowd is its multifaceted video game-like scoring system, which rewards speed, intelligence, and luck. You receive points for moving cards from the deck to the tableau, for uncovering cards in the tableau, and for moving cards from the tableau to the foundations. If you win — that is, move all 52 cards to the foundations — you get a special bonus based on your final score and the time you took. You lose points for moving cards that need not be moved and looking for the aces. There are also substantial penalties for going through the deck more than three times (in the 3 cards at a flip mode) or once (in the single card flip mode). And points are deducted for time taken. You lose 2 points for every 15 seconds, so you can't dawdle

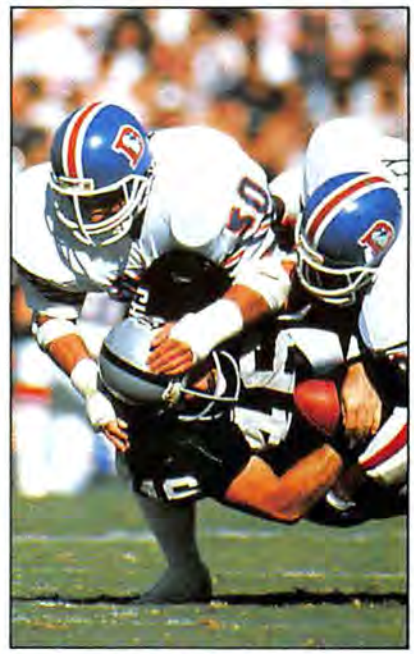


and get a good score. A perfect bonus, if you played the entire game in under 1 second (not possible), is 7350. One of our editors is both very quick and coordinated. She regularly scores in the 6200 to 6500 range. Most other people are delighted to get into the high 5000s.

There is another way to play. The Casino game is scored according to the common wagering scheme: You "pay" $52 to begin play, and you "win" $5 for each card played on the foundations. This is OK, but it's the regular scoring system that makes for a totally addictive game.

No game has been or likely will be played as much around the *MacUser* offices. (With the possible exception of *Shanghai*.) Guests come in, and if they have to wait, we set them up with *Klondike*. It's never failed to addict anyone yet.

The game plays on any Mac, from a lowly 128K machine to a Mac II. In fact, on a Mac II with color capability, the game automatically switches on its own color capability, the first Mac game to do so. And if the superb card faces do not meet your standards, the author has written a public domain program called *Deck Edit* that lets you modify the cards.



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Mike Casteel has also produced two other shareware solitaire games: *Canfield* (current version is 2.0) and *Golf* (1.1). Both have video-game like scoring systems, and are superb games, but neither is as good as *Klondike*.

I have to end this review with a warning. *Klondike* is as good as a game can be, and totally addictive. Don't start playing it unless you can afford the demands it is going to make on your time. — *SB*

BUSINESS SIMULATOR

$4444

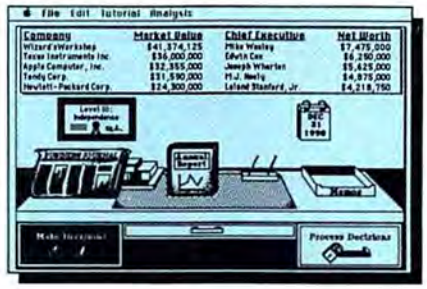


List Price: $69.95. Written and published by Reality Development Corp. Distributed by Electronic Arts, 1820 Gateway Dr., San Mateo,CA 94404. Phone inside CA, (800) 562-1112; outside CA, (800) 245-4525. Requires 512K+, 2 disk drives (one must be 800K). May be run from a hard disk. Not copy protected.

Business Simulator is an executive training tool, designed as a simulation game. It puts you at the head of a new company, then pits you against four other companies in a tough, high-tech market. Your job is to make the decisions that will successfully manage the company through several stages of growth over a 25-year period.

At the beginning of a new game, *Business Simulator* sets you up in a new company with $500,000 funding from a venture capital firm. Your product is a small, friendly household robot called PetBot. Your competitors are new divisions of some very big companies: Apple Computer, Tandy, Hewlett-Packard, and Texas Instruments. But don't panic yet — all five companies *start* at the same point, with the same funding and access to the technology. The object of the game is to carry your company successfully through its growth periods, establish it as the market leader and amass the largest net worth among the competing CEOs.

The first decisions you have to make are the only easy ones: naming your company, naming yourself as CEO and choosing a three-letter stock symbol. Once this is done, you assume your place at The Desktop, where all the action occurs. The Desktop is a graphic representation of a desk. A plaque on the wall indicates the level or phase the company is in. A wall calendar shows the date "Dec. 31, 1988." Decisions are made for a year at a time. When you process decisions for 1988, the calendar shows 1989, and so on throughout the game.



On top of the desk are the "Business Journal," your source of up-to-date economic and business information; your company's Annual Report; and a Memo tray. Memos are used to explain the details at each level and also provide important information to play the game. For instance, a memo from the head of Research and Development may list budget requests for the coming year. Or a memo from your financial officer may warn of imminent ruin if you continue in your spendthrift ways. Across the top of the screen is a table that shows the market value of each company and the net worth of all 5 CEOs.

There are also two active drawers in the desk, Make Decisions and Process Decisions. When you open Make Decisions, you are presented with the decisions that need to be made for the coming year in the areas of production, marketing, operations, and finance. In the startup phase, your primary responsibilities are to set the price for PetBot, establish an advertising budget and determine how many units to buy from the manufacturer. Each department makes recommendations, which are listed for you as guidelines. The "Business Journal," modeled after a well-known newspaper with a similar name, gives you economic forecasts and industry data that can also help in making decisions.

When you have made all the decisions required of you, the Process Decisions drawer, which has been padlocked to this point, becomes available. Double-click on Process Decisions and the game evaluates your decisions against the decisions it has made for each of the competing companies. The market value and net worth information is updated accordingly and you are faced with a new set of information and decisions for the next year.



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QUICK CLICKS

If you reach $100,000 in net income, you progress to Level II, the Growth Phase. There is a 3-year minimum at each level, though, so even if you get to $100,000 the first year you must stay at level one at least 3 years. The maximum time at each level is 6 years.

In the Growth Phase, you decide to take over manufacturing of the PetBots yourself, so you have to finance and build a plant, determine how many units to produce, and set pricing and advertising amounts.

Level III is the Independence Phase, in which your company breaks free from the venture capital firm that got you started and goes public. Decisions become increasingly complex as you establish an outside sales force, issue common stock, and begin to put money into research and development. As things get more complicated, the game provides help in the form of tutorials (explanations of terms and ideas), and consulting and analysis on the various issues involved.

The final two levels are New Products and New Markets, as you develop at least one new product and then take the company into nationwide markets.

Business Simulator is challenging. It's easy to play but the decisions become more and more difficult, as would be the case with a growing business in the real world. It has a two-player option so you can compete with a friend as well as the computer, and there are several pre-defined case studies (with accurate names, such as "Survive") that put you into difficult or challenging situations in the middle of a game. *Business Simulator* is also a good way to get a feel for running a company and learn some of the pitfalls before you actually go out and lose someone else's $500,000. — *MDW*

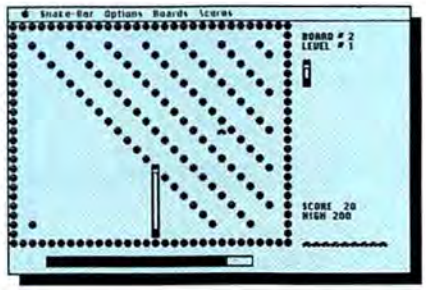
SNAKE-BAR



Shareware: $15 suggested donation. Published by Georges Malamoud, 37 Bis rue des Abbesses, Montmartre, 75018 Paris, France. Not copy protected.

Snake is a game you are probably familiar with already. It exists in many variations for the Macintosh and other computers as well. *Snake-Bar* is an excellent version of the game. It was done in France and is shareware.

Basic *Snake* playing involves moving a snake around a playing board, collecting objects. The snake's body trails after it, growing each time you collect an apple in the jungle or a car on the highway or whatever the metaphor happens to be for a particular game. The snake continues in a straight line unless you turn it to the right or left by pressing a particular key on the keyboard. The trailing body makes a right or left corner as it turns, until the whole body has made the turn. The snake dies if it hits any of the four



walls, or if the snake runs into itself, either by crossing its own path or turning backwards on itself. If you collect all the objects from one level, you advance to the next, more difficult level.

A meter counts off time as you get ready to play, so you can be ready to move as soon as the snake comes out of his hole at the bottom of the playing board. This meter also records time as you play, setting a time limit for each level.

Snake-Bar adds some fun touches to the game. Instead of always being a snake per se, the snake can be a train (in the High Noon option), a Hot Dog, or a renegade 18-wheeler (that's called Duel). There is even an option called Everything You Always Wanted to Know About Sex, which is quite amusing. Each variation has a slightly different noise for the inevitable times that you crash and die.

There are four playing speeds, Beginner, Amateur, Expert, and Presumptuous. Never mind that presumptuous is misspelled in the menu, it means precisely what it says. And you can start a game in the middle, instead of at the beginning, if you don't mind forsaking a run at the high score.

Snake-Bar also lets you customize the keyboard and menus in any of several languages — French, Spanish, Portuguese, Dutch, German, Polish, etc. (you can add your own language, if you don't like the ones listed). When you change the language, your keyboard is localized to the new settings, and your *Finder* display registers the new language as well. The English setting matches the British keyboard, so when you return to the



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Recommended by: SuperMac, Jasmine, AST, Peripheral Land, Infosphere, Quark, Blyth Software, and many others.

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QUICK CLICKS

Finder, your keyboard is set to the British layout, rather than the American.

Perhaps the most fun aspect of *Snake-Bar*, though, is that you can customize the playing board, designing mazes or setting obstacles, and saving the board for future play. The author, Georges Malamoud, includes several board variations on the disk. The "Champions" board is quite difficult, requiring an immediate turn as you come out of the starting point.

There is a high score board that, on my disk at least, lists several of the author's high scores (in the 150,000 range). This can be a bit intimidating if, like me, you score in the low hundreds. But it gives you a mark to shoot at and Mr. Malamoud requests that users send him their highest scores to see if he can keep up.

Snake-Bar is a lot of fun to play, certainly worth the $15 US requested by the author, and since it is shareware, you get to try it before you buy it. — *MDW*

MICEDGAMES ★½



List Price: $19.95. Published by MicEdWare, 4265 Midland Rd., Saginaw, MI, 48603. (517) 799-1700. Not copy protected.

It would be nice to find some good software for kids on the Macintosh. Even one well-crafted, well-designed game or tool would be a godsend. *MicEdGames* is a collection of five "educational" games for the Macintosh, and I would like to be able to say that at least one of them was good. I'd like to say that, but I can't. *MicEdGames* is unfortunately more of the same stuff we've seen before: sometimes cute, but very ordinary, poorly designed games masquerading as educational tools.

The first and most serious problem with *MicEdGames* is the lack of a clear focus on a particular age level. The games are billed as suitable for ages 5 to adult. If that meant that each game were written for a different age level, with one game for 5 year olds, another for 10 year olds, and so on through adult, this might make sense. But each of the five games that comprise *MicEdGames* attempts to be easy enough for a five year old and at the same time interesting enough for a much older child. This is patently silly, if one is really trying to teach a particular skill. And none of the five games is appropriate for a 5 year old.

The first game is *MicAlphabetize* (no,

QUICK CLICKS

that's not a misspelling of *MacAlphabetize*; all five games start with the prefix *Mic-*). This game uses a rather strange shoot-'em-up approach to put individual letters or whole words into alphabetical order. The letters or words appear four at a time, one in each corner of a large square. In the middle of the large square is a smaller square built from four small



boxes. If you click in the box in the lower right corner of this cluster, a beam shoots out and zaps the letter displayed in the lower right corner of the BIX box. The object is to shoot the letters in alphabetical order. If you miss, and shoot a letter or word out of sequence, it remains on screen and your score drops. When you kill all four letters or words, another group appears.

How does this game fail? Let me count the ways:

1. Figuring out how to get started is very confusing and requires an adult to explain the process.

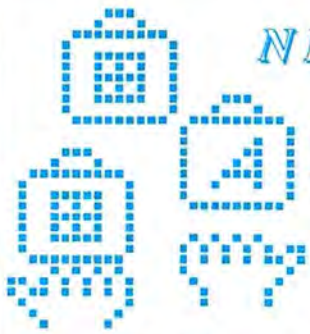
2. It's not rated for age level. The game interface makes it right for 9 to 11 or 12 year olds. But the word list is more appropriate for much younger children.

3. The word and letter combinations are extremely limited and repeat over and over. Once a child has played a game, she will have exhausted all of its possibilities.

4. The game is based on "a trick" — shooting the right box to hit the right letter or word. Games that are based on a trick rarely teach anything but the trick.

5. The score drops every time you shoot a letter or word in the wrong sequence, but unless you understand the scoring, there is no reason to figure out the correct order. If you just shoot randomly you can eventually clear out the letters.

The other four games suffer from similar failings. *MicMatch* is a very ordinary matching game that tries to span a wide range of ages. The simplest game is called *Shapes*, although it actually matches objects, not shapes. There is also a game called *Morse* that matches Morse code symbols to the appropriate letters. The worst part of this program's design is the use of patterns to cover the boxes where



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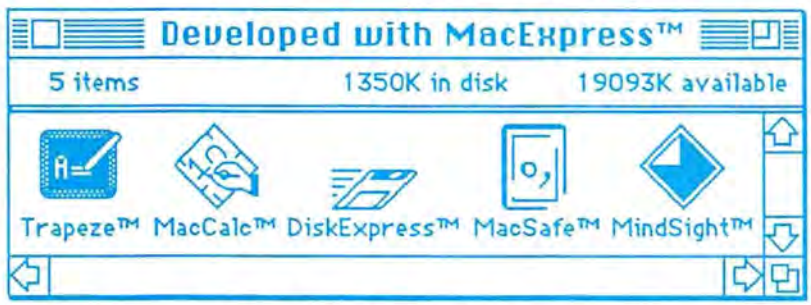
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objects are hidden. Each pattern is used twice, so the obvious action is to match the patterns, only to find that clicking on a patterned box reveals the shape underneath. This is confusing.

MicStates matches names to states shown on a U.S. map. A question mark appears in a particular state and you have to type in the name of the state. This is not a terrible game, but it is very limited. Matching states to capitals only works in one direction.

MicSpell is a spelling game that is a wonder. The game flashes a word on the screen for 5 seconds, correctly spelled, then waits for you to enter the same spelling. This is more a visual memory test than a spelling teacher. *MicTime* is a clock program with more design flaws than I have room to mention.

In addition to design problems, *MicEdGames* is not packaged very professionally. The tiny manual is poorly written and obviously was not proofread very carefully.

MicEdGames is only $19.95, and for that price your kids might get some entertainment value from one or more of the five games. But as far as decent educational software goes, I'm still waiting.
— *MDW*

MERGE WRITE ★★★½



List Price: $49.95. Software Discoveries, 137 Krawski Drive, South Windsor, CT 06074. (203) 872-1024. Version 1.0 reviewed. Not copy protected.

When I moved recently, the prospect of writing dozens of acquaintances and business contacts each a separate letter with my new address wasn't very appealing. Luckily, *MergeWrite*, a mail merge program for *MacWrite*, crossed my desk just as my forwarding status at the post office was running out.

MergeWrite creates form letters using a standard letter (just like most of the junk mail you get nearly every day) and a data file of, say, names and addresses. Some high-end word processors, like *Word*, and standalone programs like *Bulk Mailer* from Satori, already do this. But if you use *MacWrite* and have lots of mass mailings to do, then *MergeWrite* will save you time.

To start, type up a form letter in *MacWrite*. Specify those areas that you want to change by giving them a Field Name and putting it within international quo-

QUICK CLICKS

tation marks — for example, «Address» or «Amount of Money Owed ».

Once you have the wording of your form letter right, create a data document. This has the Field Names typed across the top of the document and separated by Tabs. (The problem here is that you're limited by the space of the Mac screen.) You can also use ASCII files or data imported from *RecordHolder Plus*, Software Discoveries' data base.

To run *MergeWrite*, return to the desktop, double-click on the icon, then reopen your two documents. With both files in separate windows on-screen (they cannot be edited at this point), just choose PRINT. A couple of safety dialog boxes ask if everything is copacetic, then *MergeWrite* begins the job. If something is wrong or doesn't match, *MergeWrite* just won't do it.

Whenever *MergeWrite* encounters «Address», it looks to the data document for the next entry under the Address head, then substitutes that information for the Field Name as it prints the document. If you want to use international



quote marks in the typed part of your letter, you can specify some other delimiter (like brackets or parentheses) that you don't normally use. And don't worry about using memory up storing all those letters. *MergeWrite* doesn't create or save a new file for each form letter.

Simple enough. But *MergeWrite* goes a step further by allowing you to print information conditionally. Within those same «» in the form document, you can create an IF-THEN-ELSE equation. For example, «IF Sex = "M"» Mr. «Name» «ELSE» Ms. «Name» «ENDIF». So your data document would have a field called Sex that you would label with Ms and Fs, and *MergeWrite* would look to that to determine what it should call the person you're writing. ENDIF tells *MergeWrite* to go to the next change. That's pretty simple programming, and you should get the hang of it by following the manual to the letter. The equations can also be "not equal," "greater" or "less than" some value, and "Contain" some specified text.

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MacUser gave WetPaint 5 mice (Sept. 1987)



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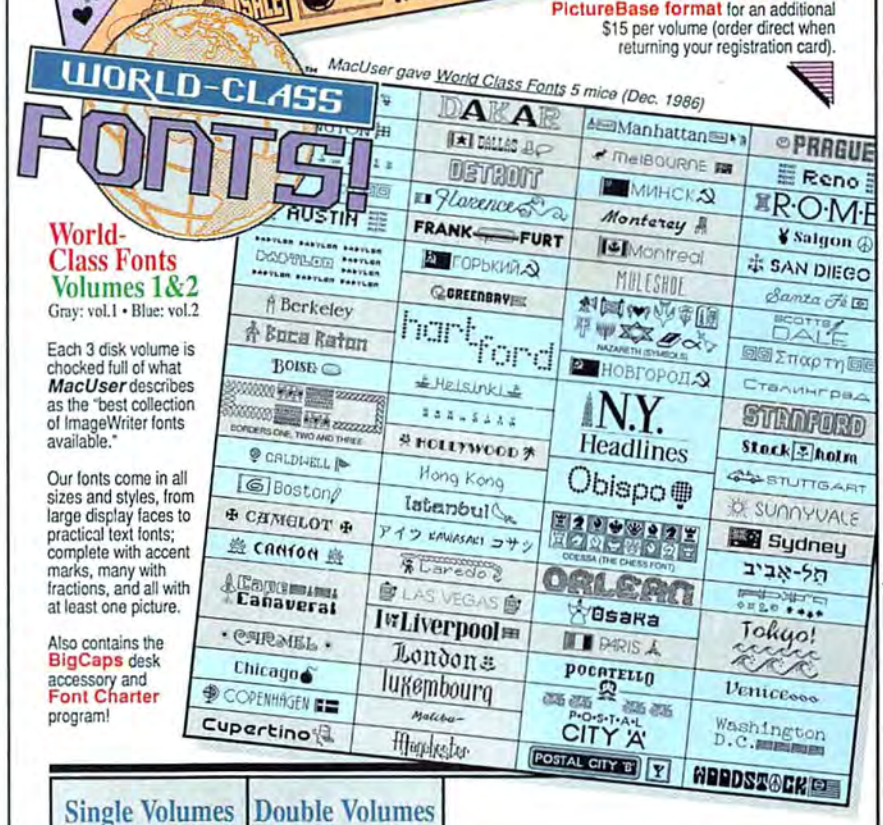
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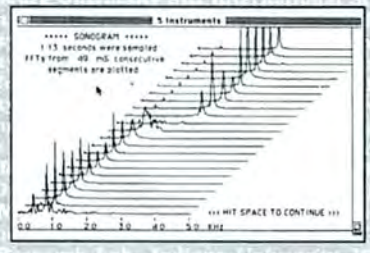
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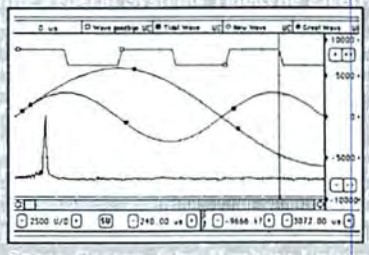
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MergeWrite works with any Macintosh and is compatible with *Switcher*. The 22-page manual clues you in on advanced features — for example, creating compound conditions using logical functions like "AND," "OR," and "NOT." Other options include sorting information in the data document by different fields, say zip codes as opposed to last names.

If you're not ready to shell out several hundred dollars for a new word processor and still need the mail merge function, then you can't go wrong with *MergeWrite*. It should solve all sorts of headaches with retyping your information. And in my case, I can stop sending in those change-of-address cards to the post office each month. — *BT*

CONCERTWARE + MIDI



List Price: $149.95. Published by Great Wave Software, 5353 Scotts Valley Drive, Scotts Valley, CA 95066. (408) 438-1990. Version 4 reviewed.

CONCERTWARE +



List Price: $69.95. Requires 512K, 128K ROMs recommended. MIDI interface and synthesizer recommended for MIDI version. Not copy protected. Version 4 reviewed.

Concertware was one of the first music programs on the Mac. The original version, which could only play through the Mac's internal sound driver, was still good enough to win an award from *MacUser* in 1985. Since then the program has gone through several changes, adding MIDI and other goodies. In its newest incarnation it is a reasonably comprehensive composition and transcription program, easy to use if you read music, and in some ways challenges the "professional" packages costing twice as much.

The major advantage of this new version is that it has the ability to record multiple notes from a MIDI keyboard. Although the two other modes of entry — the mouse and the Mac keyboard — are still available, they are so much slower they have been made almost irrelevant. Also of much less use than in previous

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QUICK CLICKS

versions is the *Instrument Builder* module of the program, in which you can design sounds to be played out of the Mac speaker. Although the module is a lot of fun, the sounds are still poor compared to what can be achieved with even the cheapest MIDI synthesizer.

Previous versions of the program were able to handle eight single-note voices; that's been expanded to eight tracks of eight voices each, although non-MIDI users will still only be able to hear four notes at a time. Each track can be displayed on its own staff and sent to its own MIDI channel, or they can be combined in any way you like.

With a MIDI keyboard, notes can be entered in "step time," in which you specify durations beforehand and then enter the pitches one at a time, or in "real time." When you work in real time, the program acts like a multitrack tape recorder, playing all the previously recorded tracks as you play. You can also have the Mac generate a metronome click to help you stay on the beat.

Key velocity information can be recorded, which is a big help. The old way of controlling dynamics was to draw a note and then to insert a dynamic marking in front of it. You can even set a "sensitivity" parameter, so that the program will only record a dynamic change if the *difference* in velocity of two adjacent notes exceeds a certain threshold. You can record program (patch) changes, but unfortunately not controllers, like pitch or vibrato wheels, or sustain pedals.

The musical staff remains the environment for entering and editing music. The resolution has been improved to a 32nd note, or one-eighth of a beat — not good enough for MIDI purists, but perfectly acceptable to most amateurs. Other new features are user-selectable stem and beam directions, which has the added bonus of letting you visually separate two voices on the *same* staff by giving them different stem directions, and the ability to add, drop, or rearrange staves at any point in the piece. For most editing functions, like cutting, copying, or transposition, multiple voices can now be handled simultaneously.

One nifty new trick is that you can copy notes from one voice and merge them with another, and the notes from the first voice will take on the rhythmic characteristics of the second. Another lets you extract a melody line from the top or bottom of a chordal passage, and copy it onto another track. You can add repeats, first and second endings, key signatures, or time signatures, at any point in the music, and the program can now



handle up to 196 tempo changes, from 30 to 225 beats per minute.

Using the program is much faster in other ways. After editing a piece, you no longer have to save it and transfer it to another module to hear it — the editing module now provides full playback facility.

When it comes to text, you can use any font and style in your System file, and use different characteristics for each word if you like. When you enter lyrics, by inserting a Tab after each word or syllable, you "lock" it to a particular note, and whenever you move the note, the lyric will move along with it. A Gap function separates notes as you enter text so that there is always enough room. (The disadvantage of this feature is that each bit of text is then treated as a separate entity, and so any editing must be done one piece at a time.) A Find Text function, which lets you immediately scroll to a particular lyric, is included.

The program can read or generate MIDI clocks, for synchronizing with other MIDI devices. Velocity data can be edited or added to a track very precisely. You can also insert "MIDI macros," which allow you to send predefined MIDI events, such as controller changes, at specific points. This is fine for a single command, like the pressing of a sustain pedal, but more complex events like pitchbend sweeps require lots of data, and this method of generating it is very clumsy. The program comes with a library of macros, and you can also create your own.

Although the restrictions on recording and editing will be annoying to folks who love their pitch wheels, *ConcertWare+MIDI* offers enough to keep even the advanced amateur very happy. Now that polyphonic MIDI recording has been implemented, and considering the ever-falling price of MIDI interfaces and synths, there's almost no excuse for not using this program with MIDI. The transcription editing and printing quality, within their limitations, are among the best to be found on the market today. Revision 4 is a good evolution of a good program. — *Paul D. Lehrman*

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Including the executives, entrepreneurs, academics and other professionals who have been waiting for an affordable entree into the world of desktop publishing.

General Computer presents the reassuring paradox you see illustrated on these pages: the first affordable laser printer that prints like it costs thousands of dollars more.

INTRODUCING THE PERSONAL LASERPRINTER.

As the documents shown here demonstrate, the General Computer Personal LaserPrinter™ (PLP™) concedes nothing in printing capability to systems selling for twice its price.

If that still seems hard to believe, we invite you to consider the following.

Until now, anyone who bought a laser printer was also buying a computer. Because laser printers have always needed a processor, memory and other expensive hardware in order to create a printable page.

WHICH WAS PRINTED ON WHICH ON OUR

Our printer, on the other hand, eliminates much of this expensive hardware in favor of ingenious software.



Software that allows the printer's imaging to be performed by the computer you already own: the Macintosh. (Either the Macintosh Plus, the Macintosh SE, or the Macintosh II equipped with any hard disk.)

This arrangement also means the PLP is much more compact than other laser printers. (An almost diminutive 16″ x 16½″ x 9″.) And having fewer and simpler parts, much less likely to need repairs.

THE PROOF IS IN THE PRINTING.

As you can see, a case could easily be made for buying the PLP on economics alone. But that would be selling it short.

Because the ultimate measure of any laser printing system

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PLP quietly provides extraordinary finished output.

Near-typeset quality presentations, newsletters, memos and reports produced with software like Microsoft's Word and Aldus' PageMaker.® All printed with a new generation of laser printing technology that offers richer contrasts than ever before.

AN INVITATION TO SKEPTICS.

In short, the PLP does for printed communications what the Macintosh did for personal computing.

It provides a sophisticated, yet affordable tool for anyone who needs to manage large amounts of information—and wants to work smarter and more creatively in the process.

So to answer the question we began with: the PLP printed the document that appears on the right.

But you don't have to take our word for it.

We invite you to make your own comparisons through a PLP demonstration at any authorized General Computer dealer. Where you'll also be able to compare another pair of documents that are far easier to tell apart:

A Personal LaserPrinter price tag. And that of any other printer of equal quality.

For the name of the dealer nearest you, call (800) 634-9737. In Illinois, (800) 854-9737. Or, in Canada, call (800) 263-1405.

A $5000 LASER PRINTER? S FOR $2600?

is how well it prints.

Like vastly more expensive laser printers, the PLP lets you print scanned photographs and illustrations, high-resolution graphics created with software like MacDraw® and Microsoft's® Excel, and otherwise juggle words and pictures until you have them exactly where you want them.

But it also provides valuable assistance even these vastly more expensive printers don't.

Including a choice of Bitstream® fonts limited only by your hard disk's capacity to store them. (Fonts you can enlarge or shrink to any point size, or fraction thereof.)

A preview feature that lets you review each page in its entirety before you print it.

And a draft mode that lets you rapidly print out works-in-progress for editing and revision by others.

Then, once all the editing and revisions are complete, the

GENERAL COMPUTER

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Hurry up and

Whether it's a two-page letter or a 100-page report, the whole point of writing is to get to the point. And nothing gets you there faster than Microsoft® Word, Version 3.



Moving an outline heading moves its associated text. So you can not only organize your thoughts, you can quickly rearrange your words, too.

That's because Word is not your ordinary word processor. In fact, it's not a word processor at all.

Word is the Macintosh™'s first document processor.

And it's specifically designed to take you from outline to output, without getting you bogged down in details.

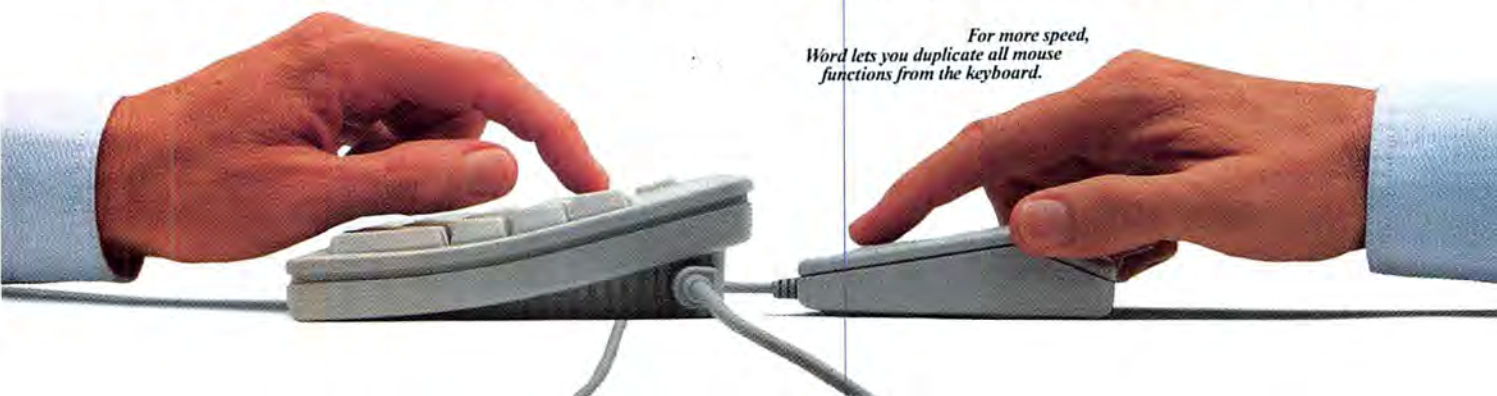
That's why you'll find a combination of powerful features in Word you won't find anywhere else.

Like an integrated outliner for organizing your thoughts. And for rearranging pages of paragraphs with a simple click of the mouse.

Likewise, a simple mouse click is all you need to check and correct your spelling, using Word's built-in, customizable 80,000-word dictionary.

Plus you can preview and adjust page layouts before you print. Customize menus, so the files, fonts and formats you need are always at hand. Even assign Word the time-consuming chore of generating a complete index and table of contents.

All critical, professional features that strip hours off the task of turning rough thoughts into crisp, persuasive documents.



For more speed, Word lets you duplicate all mouse functions from the keyboard.

get to the point.



But the real power of Microsoft Word comes from the major time-saving features available while you input, edit and format your work.

Advanced features, like command and accelerator keys, that



With style sheets, you can change from one format to another with just a click of the mouse.

duplicate every mouse function while you keep your hands on the keyboard. Glossaries, for recalling frequently used text with a few rapid keystrokes. Style sheets, for saving and reusing type styles and formats with a simple point and click.

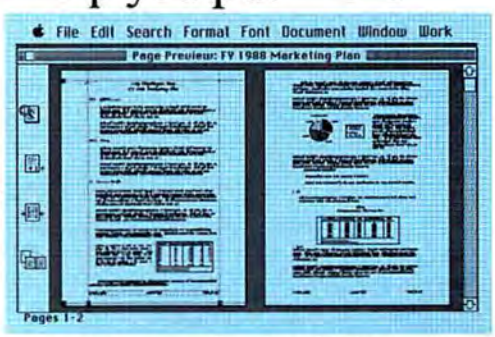
And obvious, but often overlooked time-savers, like the ability to select words, sentences or whole paragraphs at the touch of a button.



What's the difference between Word's built-in spelling corrector and a secretary with a dictionary? How about a couple of hours.

What can Word do for you? The answer can be found at your local Microsoft dealer. For the address of one near you call (800) 541-1261, Dept. A77.

Ask him to help you put Word to work in preparing your most complicated documents.



Page preview saves you endless trips to the printer because you can revise page breaks and margins before you print.

And in no time at all you'll reach your own conclusions.

Microsoft® Word

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Stacking the Deck

HyperCard delivers enough magic and tools to start a revolution in information management.

THE HEADLINE OF THE LOCAL newspaper reads: "Macintosh users take control of their computers in a nonviolent coup." It's another one of those bloodless electronic revolutions, like the ones that ushered in the graphic interface and desktop everything. The headlines of a local newspaper read: "Macintosh users take control of their computers in a nonviolent coup." You notice. You sweat a little. You get excited. But you know that revolutionary battles are fought in the trenches and not on the TV news. Couch potatoes miss all the action. So you enlist.

Welcome to the *HyperCard* revolution.

Nervously, you make your way home from your dealer. Insert the disk, glance over your shoulder, and double-click the *HyperCard* icon, wondering what you'll find. You're in the Home Stack. But where's home? You recognize it; you've been here before. *Dejá vu* . It reminds you of, uh, wait! "It's just the *Finder* in disguise. See here? I just click on this address book and I get this *Rolodex* program. Hmmm, but that must be part of *HyperCard*, too. There's more. I click on this Plots icon and I get something that looks like the charting in *Excel*."

Pretty soon, you've unearthed a paint program, a data manager, an

BY LINDA CUSTER



MILTON L. DERMS

Stacking the Deck

adventure game authoring system, an electronic kiosk producer, an implementation of hypertext, a programming environment, and more — they're all in there someplace. Sit down: you've only just begun. Meet *HyperCard*, Apple's most seductive software yet.

THE BATTLE PLAN

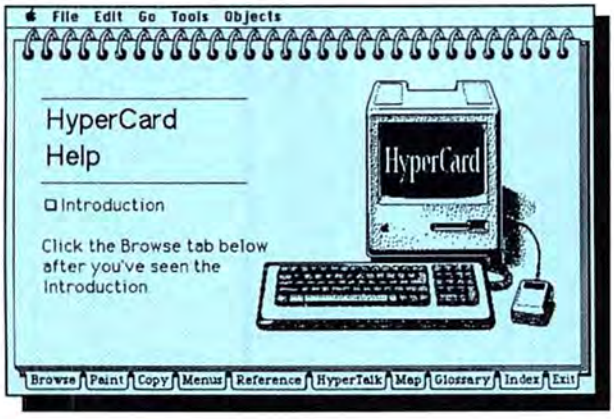
HyperCard's ammo — the files it reads and writes — are called stacks. (*HyperCard*'s distant ancestor is the *Rolodex* DA written long ago by Bill Atkinson, and the metaphor of a deck of address cards remains.) Using stacks created by others is easy. Just double-click on the stack or open it from inside *HyperCard*. You may see the familiar *HyperCard* menu or maybe no menu bar at all. Instructions will be provided right in the stack most of the time. More than in any other Mac environment, you can let yourself explore. The stacks you'll find available will be as varied in their appearance and functionality as standard Mac programs are. *HyperCard* stacks can do everything — from dialing your phone for you to teaching you Morse Code while you both see it and listen to it. Don't worry about wandering too far off course, since you can always hit a key and go back through the last cards you viewed, one by one, and start your journey over.

If you want to go a bit further and change the way an existing stack behaves, or even author your own stack, you'll need to learn about *HyperCard* itself. You'll find things easier, though, if you keep a picture of *HyperCard*'s internal world in your mind as you work with it. An important limitation is that *HyperCard* allows only one stack to be open at a time. And all the information in *HyperCard* stacks lives on cards. The cards exist on top of backgrounds, and both backgrounds and cards can contain graphics, buttons, and data base fields. Each card is exactly as large as the standard Mac screen, 512 pixels wide by 342 pixels deep. If a larger display is being used, *HyperCard* still displays its 512 by 342 pixel, fixed-size window. Although this means that stacks created on any Mac can be used on any Mac and all Macs, it also means that the advantages of big screens are wasted. Also, *HyperCard* is a black and white program. While it's possible that some programmer can and will add color to a stack, that color will be forced (at some cost) on a program that really wants to be black and white.

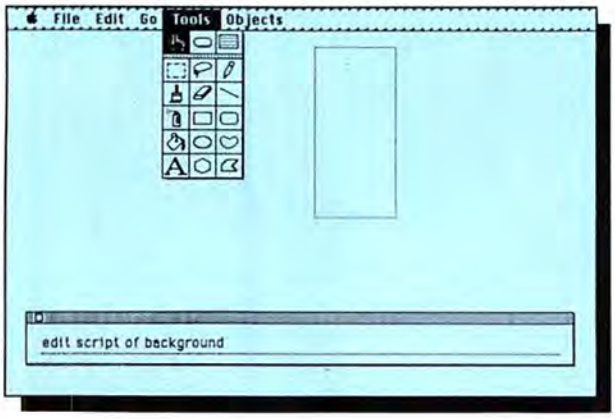
You create cards as you need them, just as you add records to a data base. Paint on cards by choosing any of the standard paint tools (like the pencil or paint can) from the Tools menu. And you can add buttons and data fields to cards with simple menu or mouse commands. Any graphics, buttons, or text fields common to more than one card don't need to be copied and pasted; you can simply place them in a background. *HyperCard* will display small hatchmarks in the menu bar to indicate that you're modifying a background. Any opaque areas in a



***HyperCard*'s home screen — where you go when you open the application. This home screen leads you to many of the stacks Apple includes with the program; you can rearrange it to lead you to the stacks you use most.**



***HyperCard*'s on-screen Help is always available, and it's more complete on most topics than the printed manual.**



A few new features for the Macintosh user interface are visible here. The message box issues immediate commands to *HyperCard*, the tools window is a tear-off menu, and the hatching around the menu bar indicates that you are viewing the background and not any specific card in the stack.

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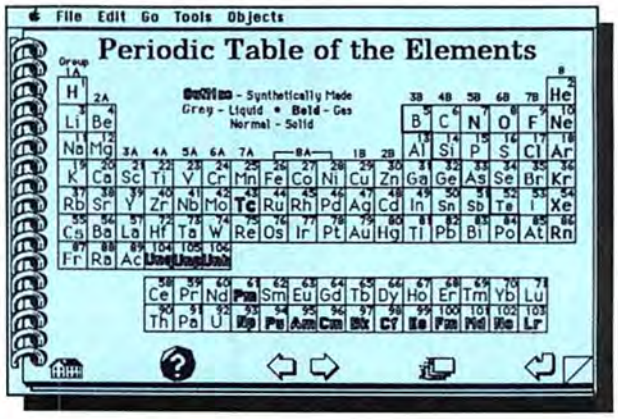
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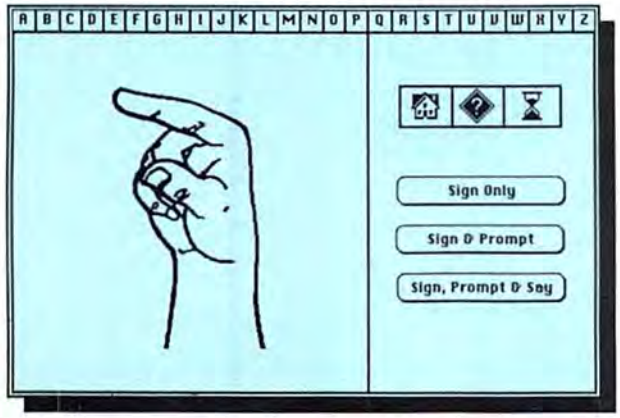
card are automatically filled in with the card's background, so if just one or two cards vary from all the rest, you can put the common elements in the background and cover them up in the exceptional cards.

Anyone familiar with *MacPaint* or workalike programs will feel at home with *HyperCard*'s painting tools. All the features you expect are there, and the interface is more powerful (if slightly harder to master). The Tools and Patterns menus take the place of the palettes. They can either be used as menus or can be dragged away from the menu bar to stay visible anywhere on the screen. (That's a feature called a tear-off menu. These torn off menus can be moved to an otherwise wasted portion of a large screen.) Another feature — Power Keys — lets you select many painting options (like Select All or Revert) with a single keystroke, and FatBits now uses the entire small Mac screen.



HyperCard **is a natural for educational stackware. Pices Publishing has released a Periodic Table of the Elements where clicking any element shows you further information about that element.**





You can use stacks to help the handicapped. Click on a letter at the top of the screen and the proper hand position for signing that letter is shown. Click on Sign, Prompt & Say and ***FingerSpell*** **will show you the hand positions and speak the phrase.**

JOIN THE ACTION

Buttons animate cards. Anything you paint on a card is static — you can click on a painted image all day long, and nothing will happen if no button is activated. Adding a button lets you move easily from one card to another. All you need to do is create a link (as easy as clicking the LinkTo button in the button's info dialog box), and the button will cause the linked card to appear. You can use transparent buttons to give life to any image or you can create buttons that look like standard Mac buttons and contain only text or an icon.

If you want a place to store up to 32K of text, use a text field. Text fields that will act as data base fields should be placed only in backgrounds and not in cards, since a text field in a single card is available only on that card and can not be searched. Once you've filled background text fields with different data on each card, the built-in, super fast Find command will search every card with that field in only a few seconds.

Now you begin to see how *HyperCard* can masquerade as so many different kinds of programs. With the simple concepts of cards holding pictures, buttons, and text, *HyperCard* lets you take control of the Mac screen in a dynamic way. Instead of living with the interface of an existing program, you can create an interface that suits the task at hand. Rather than drawing a flat map of a building, you can add buttons to a general map and see detail only where you want to. Present information clearly and leave involved, technical discussions in clickable footnotes. Form can follow function, and maybe even lead it.

LEVELS OF INVOLVEMENT

In the *HyperCard* revolution, each person has a role to play; not everyone fights on the front line. Learning about the paint, button, and text tools alone will get you started, and may be all you need.

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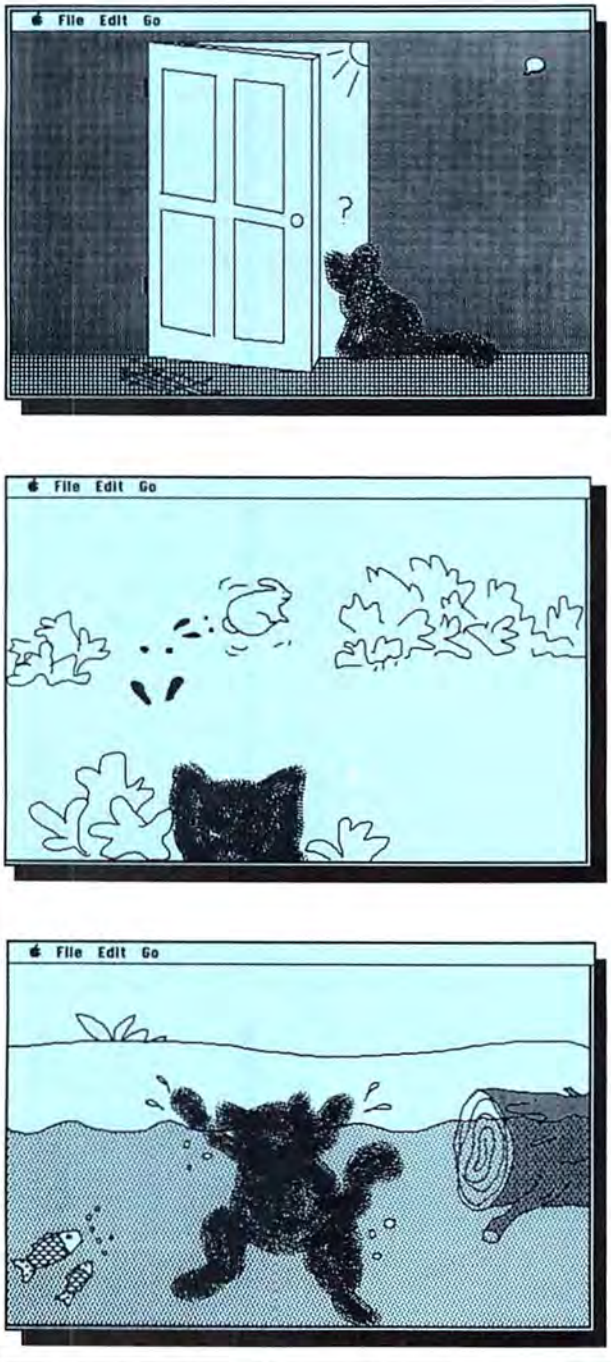
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chase commercially available stacks like *Business Class* and *Focal Point* and use *HyperCard* just to run those programs. Others, curious about what's underneath, will change their Home Card around to their liking and modify the scripts on some frequently used stacks. And some will see the potential to extend *HyperCard* in new ways, so they write stacks full of scripts to make it whatever they want it to be. Only you can determine whether you should dig deeper and explore *HyperTalk*, the built-in scripting language.

Fine, but this sounds familiar. After all, users, power users, and programmers have always existed happily in the Macintosh world, so what's different now? Dig a little deeper and look at the numbers. Out of millions of Macintosh users, only a few are Macintosh programmers. Power users are fairly common, but the vast majority of users would never consider writing a program to customize their Mac. They're limited by what they can do with the software they find available, and they're stuck with quirks in software that they'd change if they could. *HyperCard* tips the balance in favor of the casual user, blurs the line between program and data, and lowers the fence between those who write programs and those who use them. It trickles the power down to more people.



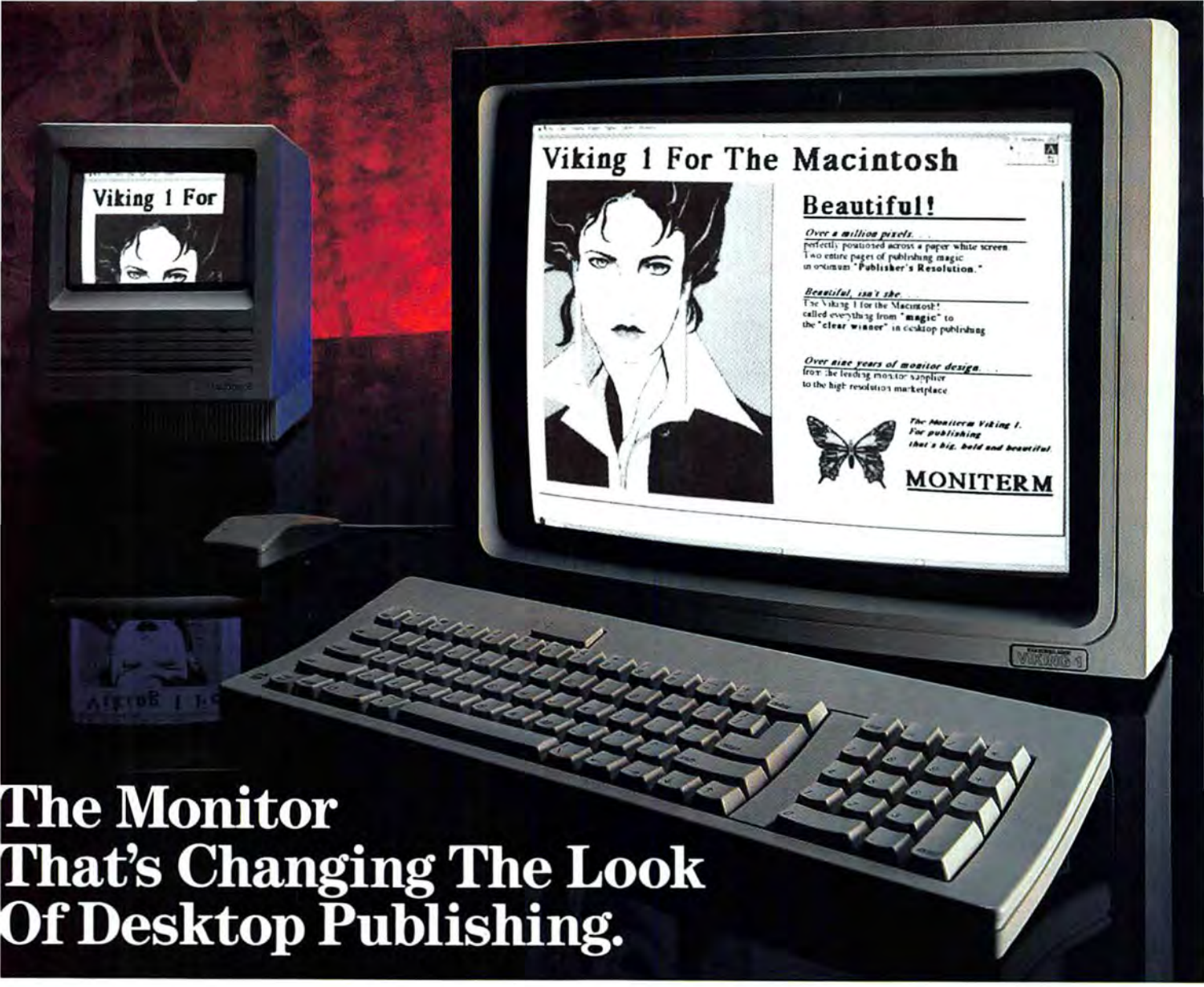
Amanda Goodenough, the daughter of Bob Goodenough of the *HyperCard* development team, used a stack to put together a charming adventure story where Inigo the Cat ventures out of doors and sees the world.

SPEAKING THE LANGUAGE

For those who decide to grab all the power, *HyperTalk* will be their platform. *HyperTalk* gives just about every advantage possible to the novice user. Its programs read almost like English sentences ("put the name of this card into cardName," "add timeFound to currTime" or "if the shiftKey is up then go to next card"). It is interpreted, so although it runs more slowly than it would if compiled, it points out and recovers easily from errors. It allows multiple ways of issuing commands when appropriate, and doesn't require you to take computer science classes on the differences between variable and value parameters. *HyperTalk* is also very smart about its environment — the buttons and files and cards around it — and manages most tedious tasks for the programmer (see the sidebar on object-oriented programming).

Moreover, *HyperTalk* doesn't hold back veteran programmers. Even though the syntax is simple, the algorithms that can be crafted are very powerful. Almost any action that could be performed by a user — and many that can't — can be automated in a script. Choosing paint tools or menu items, opening files, dragging graphics, emitting sounds, and manipulating text are all just a few lines of code away. Imitating the user interface of your favorite Mac programs — and even going them one better — is painless.

Just in case *HyperTalk* can't do something you really need to do, *HyperCard* has a solution for that, too. Use your favorite compiler to create a special external command or function file using whatever you need from the entire Macintosh toolbox.



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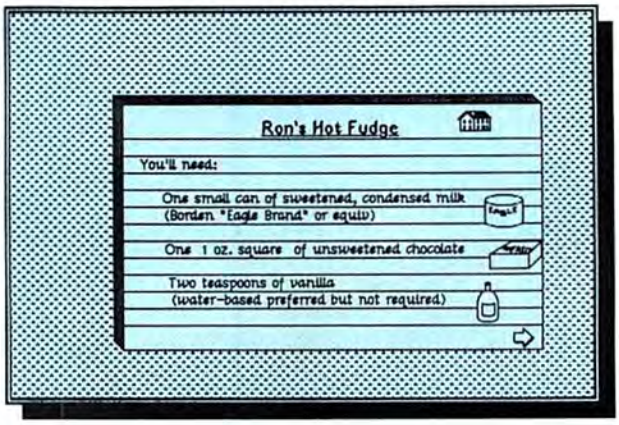
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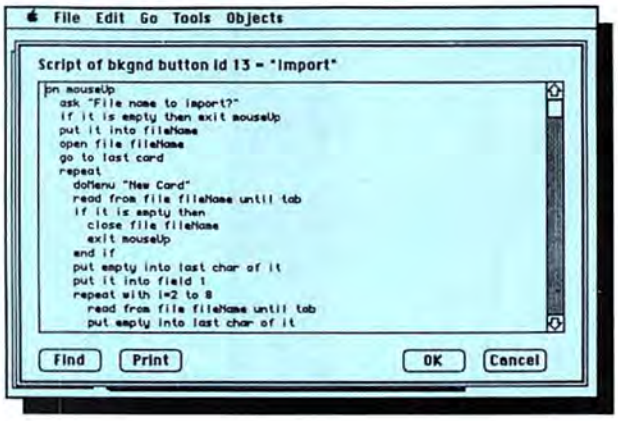
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Stacking the Deck

The commands and functions you create are then available to any *HyperCard* script, and the external procedures can communicate with *HyperCard* to use any of a long list of its commands. While creating external files is seldom necessary and requires a good deal of programming skill outside of *HyperCard*, it's there if you need it.



No one said *HyperCard* couldn't be taken to excess. Ron Risley sent his hot fudge recipe to his electronic friends via a stack.



***HyperTalk* is friendly enough to invite many users to learn programming for the first time. This simple script for a button opens a file and converts data from tab-delimited to *HyperCard*.**

MARSHALLING YOUR RESOURCES

You passed the first day of basic training. Now study up for advanced training. Start by reading the Apple manual that comes with *HyperCard*. Go to your nearest bookstore or computer store and pick up a copy of Danny Goodman's *The Complete HyperCard Handbook*, published by Bantam. Call your local user group and see if they have a special interest group for *HyperCard*. Purchase some commercial stackware from Heizer Software's Stack Exchange or the many publishers who are now developing stacks. Look at the many public domain or shareware stacks distributed through on-line services and user groups.

Once you've had an opportunity to explore *HyperCard* and have some ideas for stacks you'd like to author, consider joining APDA — the Apple Programmers and Developers Association. APDA is a great source for the latest technical information from Apple, including the *HyperCard Script Language Guide* — a kind of *Inside HyperCard* that has the technical documentation you'll want if you are serious about authoring. (See the sidebar listing addresses and phone numbers.)

MINOR SKIRMISHES

Even a hotshot program like *HyperCard* can stand improvement. *HyperCard* only operates in one nonresizeable window at a time. This feels natural on a Macintosh with a standard 9-inch screen, but wastes much space on a large screen display. It also forces everything you print to be in multiples of cards, so card boundaries are quite noticeable. Standard business forms cannot be accommodated. A multiple-window interface where windows could scroll to display whole standard pages would be a welcome addition. *HyperCard* does not yet support any colors or levels of gray; many stacks would be enhanced if it did.

Graphics are always bit-maps, so multiple layers of overlying pictures are difficult to edit cleanly. Putting an icon in a button will do the trick

Resources for HyperCard Users

Where to get help, documentation, and stackware.

Documentation
APDA (Apple Programmers and Developers Association)
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Renton, WA 98055
(206) 251-6548

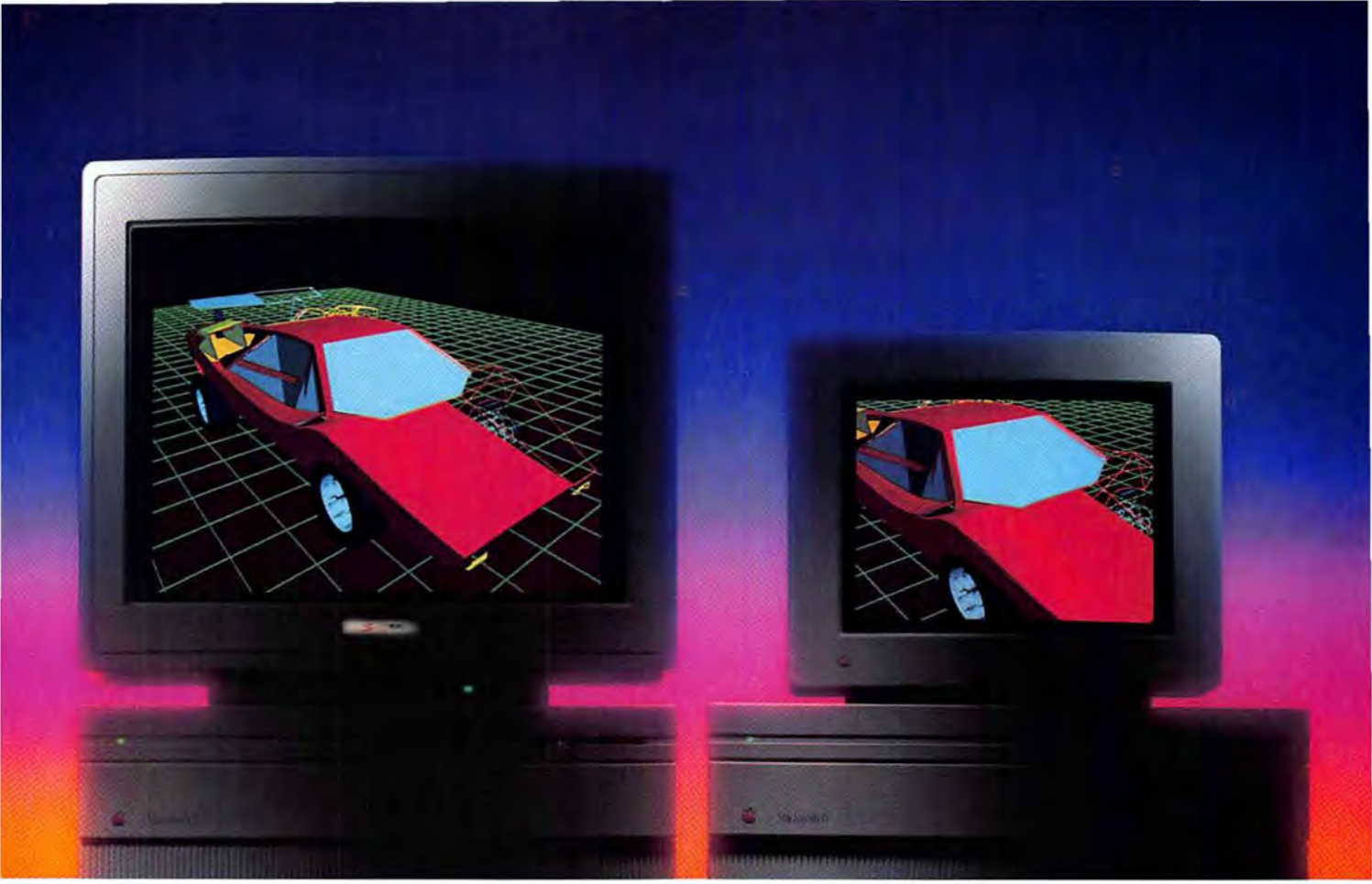
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Help and stackware
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1442A Walnut Street, #62
Berkeley, CA 94709
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Boston Computer Society
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Or your local user group. Call 1 (800) 538-9696, extension 500, for the name of the user group nearest you.

And don't forget on-line information services like the MAUG forums on CompuServe, the Mac sig on GEnie, the Icontact forum on Delphi, and the Mac conference on BIX. They'll all have up-to-date stacks for you to download and people who can answer your questions.



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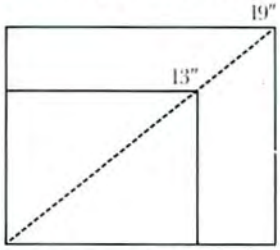
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PORTFOLIO

January 15, 1988 Volume V No. 1

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Continued on page 4

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16	SPECIAL REPORT	31	
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Take An Objective Look

Underneath its skin, *HyperCard* is one of a new breed of programs that really shows off a technique called object-oriented programming. Even though you may never write a program, even in *HyperCard,* you can still appreciate some of its philosophy.

Most computer programs are written in procedural languages. FORTRAN, BASIC, C, Pascal, and assembly language normally fall into this class. In a procedural language, you simply create a list of things for the computer to do, in order. You can branch from one place in the program to another, and you can repeat a set of instructions, but generally the computer starts at one place and goes until it's finished. The emphasis is placed on verbs, that is, on what the computer does next.

In contrast, object-oriented programming sets up a world of things but does nothing until those things receive messages. (The things here do not have to be physical objects like windows or rectangles, although they can be. They can also be data structures that are not apparent until you understand a program's internal structure.) Object-oriented programming, then, gives knowledge to things.

How does this all work in *HyperCard*? As soon as a stack starts up, *HyperCard* "tells" the stack that it has started. Programmers who want the stack to do anything to initialize itself have to leave a handler (really just a small procedure) that would do its job and then exit. The stack might contain buttons, and *HyperCard* continually monitors to see if a button has been pushed. When a user clicks the button, *HyperCard* again sends a message and if the button has a routine to perform when it is clicked, that routine takes over.

Handlers are written in much the same way as they would be in a procedural language. However, the programmer is freed from writing all the necessary routines that manage deciding when the handlers are executed. Compare these two simple programs, one in (incomplete!) Pascal and the other in *HyperTalk,* which both accomplish the same thing.

In full object-oriented languages, programmers create not only objects, but classes of objects. Classes of objects are useful because they allow objects to share properties. The programmer begins by writing the handlers for the most general cases and new objects in that class automatically use the same handlers unless the programmer specifically overrides them.

HyperCard's world consists of only five object classes: buttons, text fields, cards, backgrounds, and stacks. The program defines how each of them acts. When you use *HyperCard,* you will be creating instances of the classes. You might even say your stacks *inherit* a little of Bill Atkinson's intelligence.

PASCAL

```
PROGRAM actLikeHyperCard;

  TYPE
    location = ARRAY [0..1] of integer;
    buttonKind = (nextPage, calculate, noButton);

  VAR
    currentCard: integer;

FUNCTION getWhereMouseWas: location;
{ Programmer would have to write this function. }

FUNCTION buttonCheck(where: location): buttonKind;
{ Programmer would have to write this function. }

PROCEDURE handleMouseDown;
{ Programmer needs to find where mouse was clicked and interpret what click means. }

  VAR
    where: location;
    kind: buttonKind;

  BEGIN
    location := getWhereMouseWas;
{We'll assume this function exists somewhere. }
    CASE buttonCheck(where) OF  noButton: ;
      nextPage:
        IF NOT (currentCard+1 = maxCard)
          THEN showCard(currentCard+1);
      calculate:
        BEGIN
          { perform some calculation }
        END
    END
  END;

{ MAIN PROGRAM }
{ Programmer needs to write a loop that constantly checks to see what is happening. }

BEGIN
  IF mouseDown = true THEN handleMouseDown;
  IF menuChoice = true THEN handleMenu;
{  Many more lines might be needed to check for all possibilities. }
END.
```

HyperTalk

```
-- Programmer writes this script inside
-- information about the button, so the
-- script will only be executed when the
-- button is pressed. The mouseDown
-- message would have gone to some
-- other handler if a different button had
-- been pressed, or some other item had
-- been clicked.

on mouseDown
  go to next card
-- HyperCard keeps track of which card is
-- next.
end mouseDown

-- And in another button's information area,
-- the programmer would type:

on mouseDown
-- do whatever calculation is required
end mouseDown
```

since buttons are layered, but this means that the object has to be converted into an icon before it can be used — an extra step and a trip to *ResEdit*. When bit-maps are printed, the full resolution of a laser printer or phototypesetter can't be used. *HyperCard* badly needs an object graphics layer.

Changing anything in *HyperCard* is easy, sometimes too easy. Most of the time, you'll want to save any changes you make to a stack, as you are working. *HyperCard* obliges and saves as you go. Sometimes, however, you might do something you don't intend. While *HyperCard* contains facilities for undoing mistakes, especially in its paint layer, those facilities don't always go far enough. To be on the safe side, always work on a duplicate of any stack you can't afford to be without, and make frequent back-up copies of your work. Hopefully, a future version will have better file-saving management.

Data base capabilities could be enhanced enormously. Currently, the only way to select those cards that match a criterion is to create a new stack and then copy all found cards to the new stack. The concept of a selection of all available cards is not defined. Once entered, data is not as fluid as it could be. With a two-line script, *HyperCard* can launch other programs and get from place to place. It can also move text and graphics in through the Clipboard. However, *HyperCard* has only very simple commands for importing and exporting data. It knows how to read text files, but that's about it. To import other files, you'll either need to write your own script or get a stack that can do the job for you. Integrated, easy-to-use support for DIF, SYLK, and tab- or comma-delimited text files would be very nice. Graphics can only be exported one at a time through the Clipboard, so collections of bit-maps can't be used by programs that don't understand *HyperCard*'s file format.

HyperCard doesn't yet contain some features that would make it an attractive environment for commercial programmers. While an author can password-protect stacks and set their maximum user level so casual

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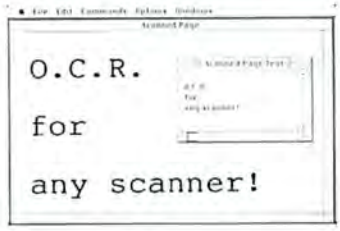
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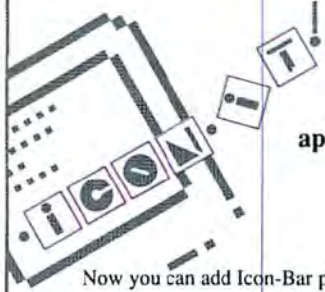
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Stacking the Deck

users can't see how various tricks were performed, the protection is easy to break. Within two weeks of *HyperCard*'s release, a shareware program appeared that could extract every script and useful piece of information from any stack. In the future, a compiler or at least a file encoding scheme will be necessary to entice more good programmers to write stackware.

Stacks contain mostly bit-map information, and sometimes digitized sounds, so they take up large amounts of disk space. The Help stack provided takes up almost a complete 800K disk by itself. The program and stacks require at least 1 megabyte of RAM (more if you can swing it) and cry out for at least a 20-megabyte hard disk.

As more developers take *HyperCard* to its limits, most of these annoyances should go away. Sets of external functions and procedures will make the program more powerful, and new releases of the program running on Macintoshes with more memory will dissolve its quirks. Sit back and enjoy, because you'll like what you see. The future is in the cards — the *HyperCard* revolution enlistment cards, that is.

LINDA CUSTER IS A PH.D. CANDIDATE IN BIOCHEMICAL ENGINEERING AT UC BERKELEY AND A *HyperCard* FAN.

MACUSER RATING

HyperCard ★★★★

Follows Mac Interface	■ ■ ■ □ □
Printed Documentation	■ ■ ■ □ □
On-Screen Help	■ ■ ■ ■ ■
Performance	■ ■ ■ ■ □
Support	■ ■ ■ □ □
Customer Value	■ ■ ■ ■ □

Comments: One of those programs that comes along and changes people's ideas about what computers are here for. **Best Feature:** Allows novice users to easily write useful and powerful programs to manipulate information. **Worst Feature:** Shares some of the least pleasant aspects of *MacPaint*, like fixed window size and lack of object-oriented graphics. **List Price:** $49. 1 MB required, much more is better. Published by Apple Computer, 20525 Mariani Avenue, Cupertino CA 95014. Version 1.0.1 reviewed. Not copy protected.

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Once More, Without a Net

Trapeze 2.0 takes its encore act to the big top with a flashier and cleaner look.

BY ROBERT R. WIGGINS

DO YOU REMEMBER THE ADS FOR the original version of *Trapeze,* the ones where it called itself "the spreadsheet without limits"? Unfortunately, that wasn't entirely true. Version 1.0 wasn't exactly a spreadsheet, and using it simply as a replacement for one quickly uncovered some very real limits. But the potential was there for a truly amazing, powerful data analysis tool with the ability to really integrate graphics.

The all-new *Trapeze* 2.0 is the polished gem made from the diamond in the rough that was the original released version. It still isn't perfect, and it still isn't necessarily for everyone, but there's nothing quite like it for integrating complex calculations and drawings.

PRESENTATION WORKSHEET

Trapeze 2.0 creates a new market niche for itself, blending the capabilities of a spreadsheet with those of a "desktop presentation" tool to create the "presentation work sheet." *Trapeze* 1.0 also had the built-in graphics capabilities and the ability to import graphics. But *Trapeze* 2.0 has enhanced graphics handling especially in the charting functions and adds color support. Using this program on a Macintosh II is quite spectacular and the results can be printed, in color, on an ImageWriter LQ or ImageWriter II.

BLOCKS AND CELLS

The palette where numbers and graphics are blended in *Trapeze* 2.0 is the worksheet, which can be up to 40 pages wide by 40 pages deep, and can contain up to 32,767 blocks (if your memory allows).

The basic unit of work in *Trapeze* is the block, although blocks can be subdivided into cells. Blocks are the basic components used in formulas, although specific cells in a block can be extracted using special functions. Blocks can have names and comments associated with them, in addition to their contents. The names are necessary to use blocks in formulas, since their location can change on your whim. The comments are helpful for documenting a worksheet.

The many kinds of blocks that can be placed on the worksheet include number, word, chart, picture, data base, text edit, and graphics blocks. Once placed, blocks can be individually moved or resized, unlike cells in a spreadsheet. Non-graphic blocks can each have different font, style, size, and alignment characteristics, or they can be allowed to default to a specific set of characteristics stored in each worksheet.

NUMBER BLOCKS

The spreadsheet-like functions of *Trapeze* are provided via number blocks. For a 5-year income statement, for example, you could create a five-cell block called Sales and another called Expenses, then create a block called Income containing the formula "Sales-Expenses." A feature called auto-sizing will cause the Income block to automatically become a five-cell block to hold the results of the calculation. Auto-sizing makes *Trapeze* particularly suited to matrix mathematics, especially as it has several powerful matrix-related functions.

While individual cells in blocks can be extracted with functions and used in calculations, it is better to design the worksheet so that only blocks are used in calculations. This requires more planning than using a typical spreadsheet, but it pays off in the long run with more understandable and more easily audited worksheets.

For the engineering and technical environments for which *Trapeze* is uniquely suited, the block concept works quite well. Some financial applications, such as those involving cross-footing, can be done much more readily with a standard spread-

GARY HOVLAND



Once More Without a Net

sheet package. *Trapeze* supplements and complements a standard spreadsheet package, rather than completely supplanting it. For fast and dirty analysis, a spreadsheet should be used, while *Trapeze* is the choice to prepare final reports.

THE ICON BAR

Trapeze 2.0 retains the icon bar of its predecessor. Some of the pop-up menus that appear off this bar include the Action, Tool, Formula Builder, and Edit Box menus.

The Action pop-up menu controls the edit window, allowing you to accept or cancel what you've entered. The Tool pop-up menu must be mastered before you can get far with *Trapeze*, since what happens when you click on a area depends on which tool you are using. Depending on the tool selected, you can select blocks, create blocks of different types, move blocks, or resize the cells within blocks. Some of the tools are accessible from the keyboard, to reduce the need to use the menu.

The Formula Builder pop-up menu can be used to create formulas using the menus. You can also type the formula in by hand, which is often easier to do. The Edit Box menu lets you name boxes, edit the contents of boxes, display formulas, or edit comments about the box.

Trapeze 2.0 has also expanded the hierarchical menus introduced in version 1.0. The longer lists in the Formula Builder pop-up menu have been shortened and made far more manageable by grouping related items together and adding a level of hierarchy (if you really liked the long lists, they are still accessible).

FUNCTIONS AND FUNCTIONS

The reason the formula builder menus got so long is that *Trapeze* 2.0 adds even more functions to the already staggeringly long list of the original version. Some of the newcomers are Attach, Indexsort, Sameshape, Sort (for block rearrangement); Contour, Hilo, Legend, Polarchart (for charting); Integ, Simpson (for matrix work and modeling); and Extract, Find, Lookup, Textract, Hlookup, Vlookup (for selection). The mathematical, block and cell attribute, conversion, date and time, financial, logical, statistical, string manipulation, and transcendental functions remain essentially unchanged.

OUTPUT ORIENTATION

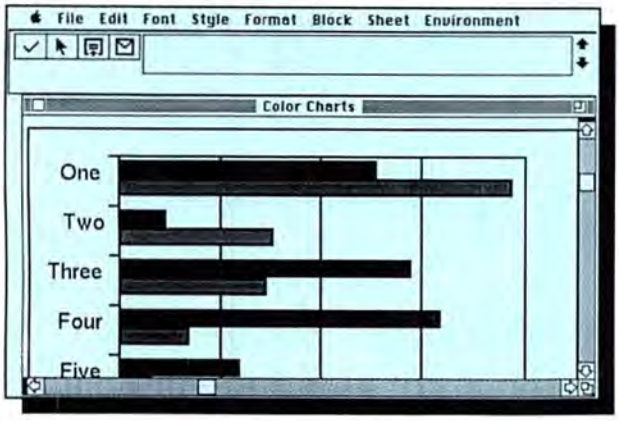
The main difference between *Trapeze* 1.0 and *Trapeze* 2.0 is in orientation. The earlier version concentrated too hard on the worksheet side and didn't pay as much attention to the presentation side. This new version, while enhancing many of the worksheet capabilities, concentrates on the presentation aspects, with the addition of color support and the new charting functions making attractive output even easier to obtain. Its features better complement its powers.

For example, *Trapeze* 2.0 has both delta and count iteration capabilities, so even if the function you need was somehow omitted, you may be able to write your own. One of the examples in the manual shows how to calculate eigenvalues and eigenvectors using iteration.

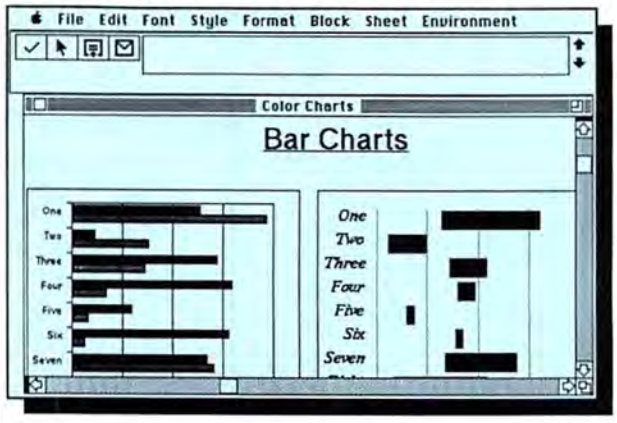
And now your worksheets can be linked, so you can use data from one worksheet in another, to consolidate worksheets, for example, in a multisheet budget system. Unlike version 1.0, it is not necessary to load entire worksheets into memory to obtain the linked data.

IMPORT/EXPORT

A major weakness of *Trapeze* 1.0 was its limited ability to transfer data to and from other applications, I'm pleased to be able to report that this problem has been remedied in a big way. *Trapeze* 2.0 can import tab-delimited, comma-delimited, and plain text files, PICT files, WKS (for you *1-2-3* users) files, and Trapeze Text Format (TTF) files. It can export tab-delimited text, PICT, and TTF files. Trapeze Text Format, a complex description language that can be used to completely build a worksheet, is intended for special applications, such as using mainframe computers to prepare the data and download it for use in *Trapeze*.



***Trapeze* allows you to view the worksheet at 200%, 100%, 50%, 25%, and 10% of actual size. This 200% view is useful for detail work and alignment.**



The normal view in *Trapeze* is 100%, which only allows part of the page to be seen on a standard Mac screen.

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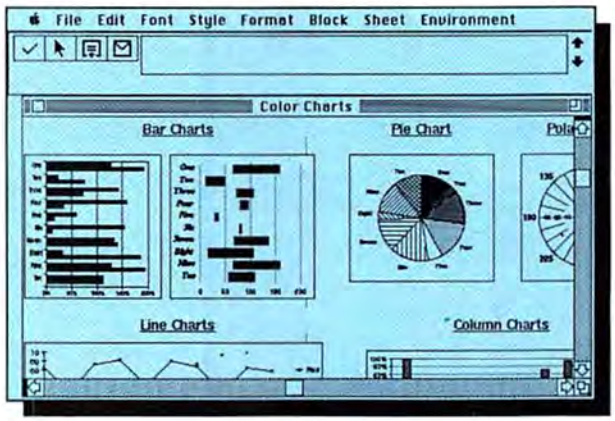
Once More Without a Net

Trapeze Text Format can also be used to transfer worksheets via communication systems that only support standard ASCII characters.

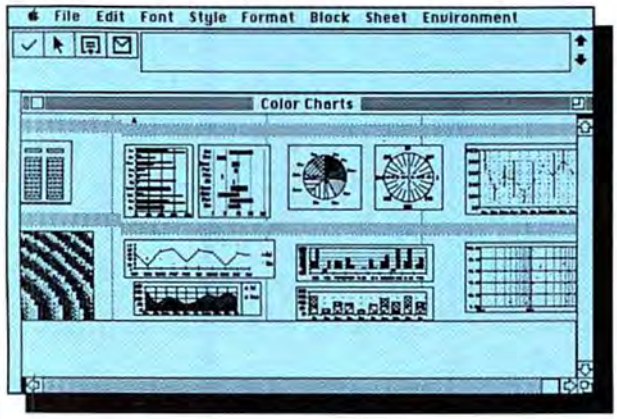
THE NEW BOOK

Trapeze 2.0 comes with a completely rewritten manual. The new manual is easy to follow, has a brief tutorial and explanations of the new examples that are now included on the disk. It also fully describes all of the functions available. While there still might be some functions of *Trapeze* 2.0 that may remain a mystery to you even after reading the manual (things like linear regression and Gaussian elimination), a course or two in advanced mathematics should fix that.

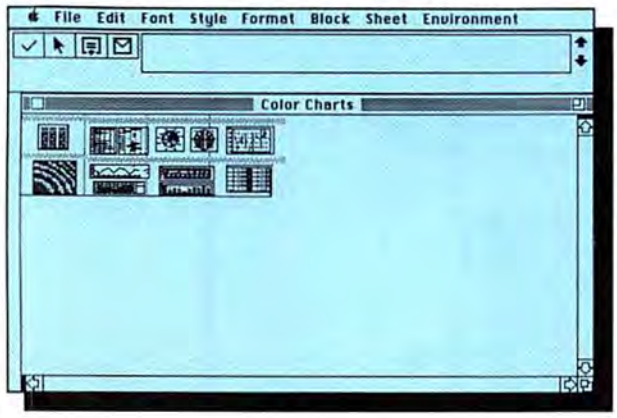
The manual has room for further improvement. The tutorial is a bit too brief, and there are some important functions, like charting, whose explanations are scattered around the manual. The examples provided go a long way to mitigate this shortcoming, since it is always easier to learn from a good example than an explanation. But a longer tutorial, perhaps separate from the reference manual, could help shorten the learning curve.



The 50% view shows almost two pages across and more than half a page down, here allowing the bar charts, pie chart, and parts of a polar, line, and column chart to be seen.



The 25% view allows more than three pages to fit in the window on a standard Mac screen, although the text can no longer be read.



At 10% of normal size, three pages down and nine pages across fit in the standard window. All of the charts in this example are color, and would print in color on an ImageWriter II or LQ and display in color on a Macintosh II with color monitor.

PROPPING UP THE PRODUCT

The highest marks go to Data Tailor's support. Buyers of the original version of *Trapeze* were supplied with frequent free upgrades as bugs were uncovered and squashed, and are the recipients of a free upgrade to version 2.0 as well, which includes the completely rewritten manual as well as many new example worksheets.

There is a technical support staff available by telephone for helping with any problems which may be encountered. The authors of *Trapeze* are responsive to suggestions, and many of the changes in version 2.0 came about because of requests from users. Data Tailor is also truly interested in the uses to which people are putting *Trapeze*, and some changes were the result of seeing the way people were actually using the program.

A FEW BRICKBATS AMONG THE ROSES

Trapeze 2.0 does have some flaws. Getting the information from linked worksheets is not automatic and requires manual intervention. And *Trapeze* 2.0 is not particularly easy to learn, and not always easy to use.

The user interface takes some getting used to, and using the tool selection menu remains awkward for a long time. The long trip to the icon bar when working on a large screen can be very annoying. Now that Apple has introduced "tear-off" menus in *HyperCard*, perhaps the next version of *Trapeze* can use them to remedy this situation.

The hierarchical menus can also be difficult to master, although now that Apple has officially included them in its architecture and programs using them will be following the "new" Mac interface, you'll start seeing more of them in other programs. And as you do, they'll become easier and easier to use.

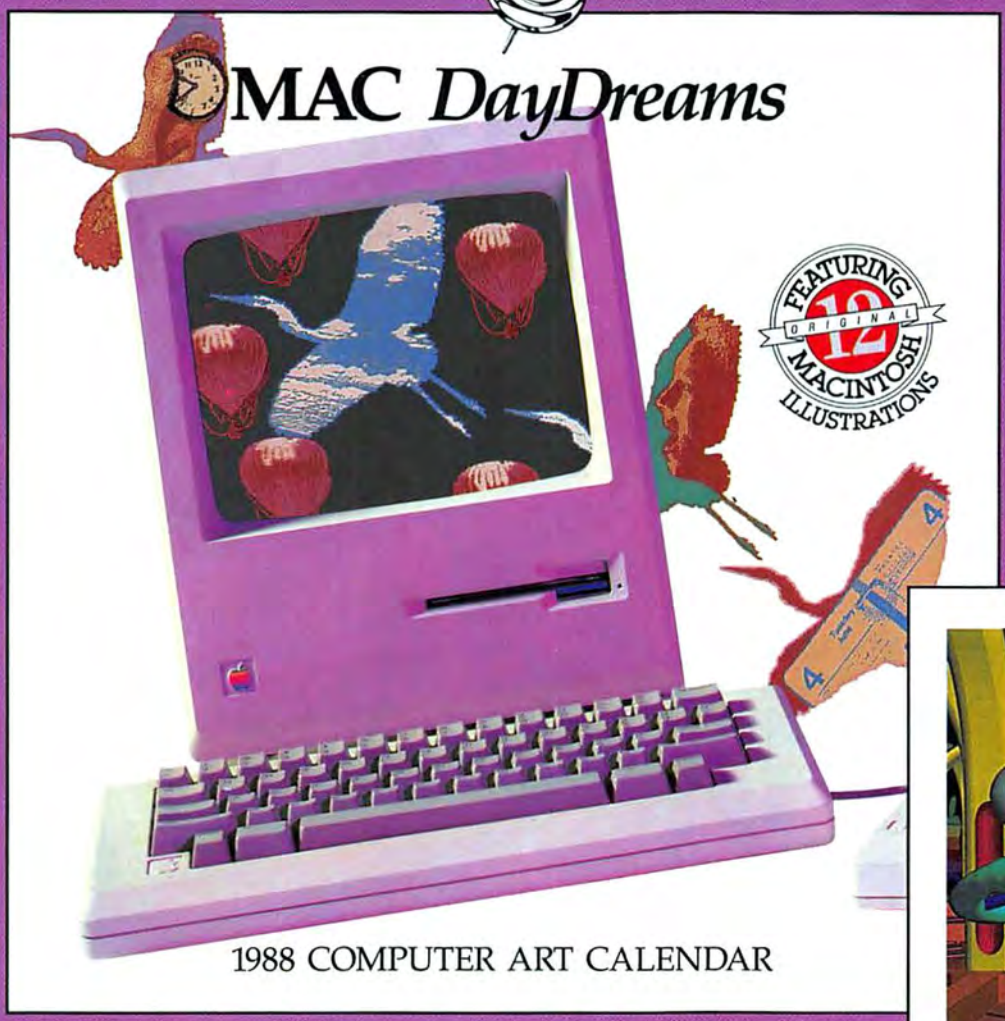
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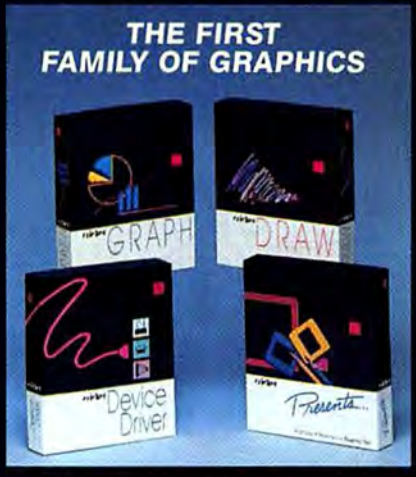
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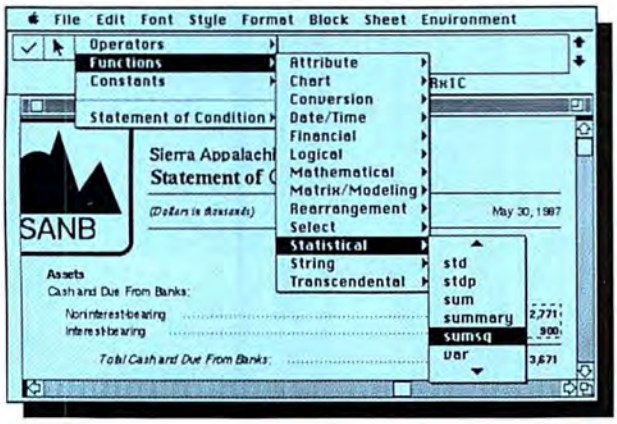
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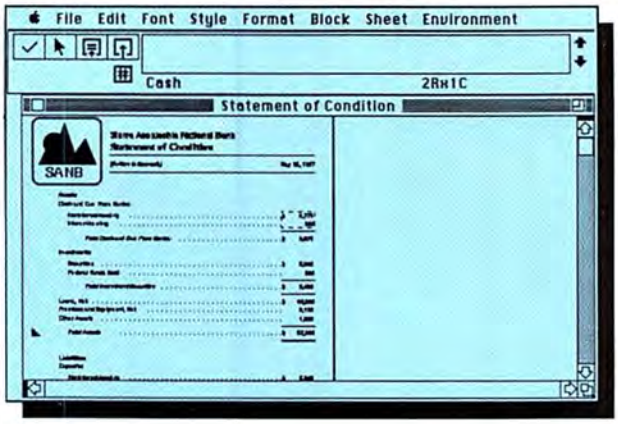
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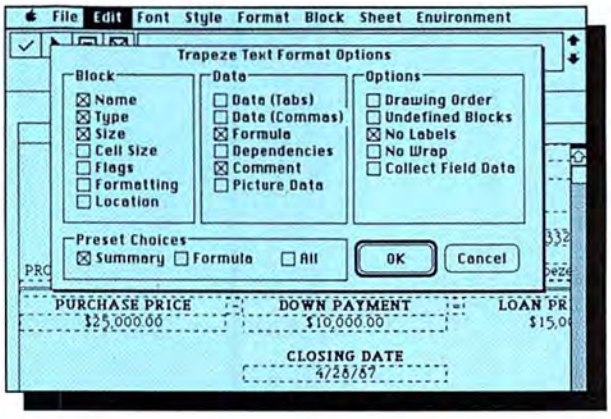
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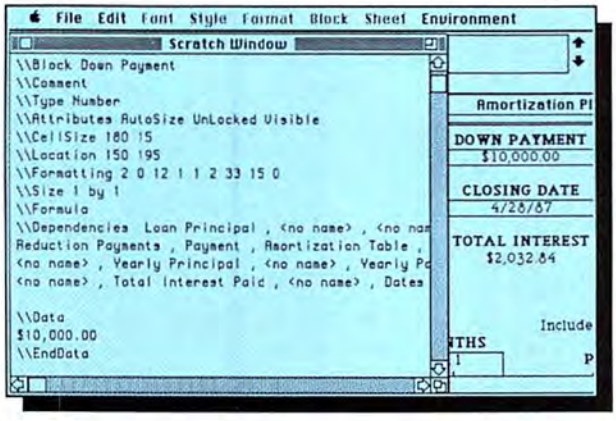
Trapeze uses hierarchical menus to organize its many functions, making them easier to locate. Function names can also be typed in, obviating the need for the menus.



Trapeze can be used to integrate externally produced graphics, such as a logo, into an attractive presentation of data.



Trapeze Text Format provides a way to transfer *Trapeze* information via mainframe and other computers which don't understand Macintosh file formats. A variety of options are available.



The Scratch window on the left contains the full Trapeze Text Format description of the Down Payment field on the right and can be used to reconstruct the block exactly on another worksheet.

capability, so it's often not as useful as a spreadsheet for repetitive tasks. However, using its iteration capability, it's possible to create the *Trapeze* equivalent of *Excel* function macros. And since *Trapeze* has so many functions already built in, this is icing on the cake. It's the absence of command macros that makes life a bit difficult in some situations.

THE BOTTOM LINE

Trapeze 2.0 is an excellent value. The concept of a "presentation worksheet" may not spread like wildfire, but if you need to mix calculations and graphics, this is a product you simply must have. Engineers, financial analysts, and anyone who makes presentations of complex analyses will find the integrated graphics capabilities indispensable. With its improved data importing and exporting, *Trapeze* can also be used to polish work done in a spreadsheet for more attractive presentation.

Oh, and as to "working without a net," *Trapeze* 2.0 actually has a greatly improved Undo capability. So while you may feel like there's no net, you *can* keep yourself from falling too far.

ROBERT R. WIGGINS IS THE EDITOR AND PUBLISHER OF THE *MACINTOSH BUSINESS LETTER* AND CONTRIBUTING BUSINESS EDITOR OF *MACUSER*.

MACUSER RATING

Trapeze 2.0 ★★★★½

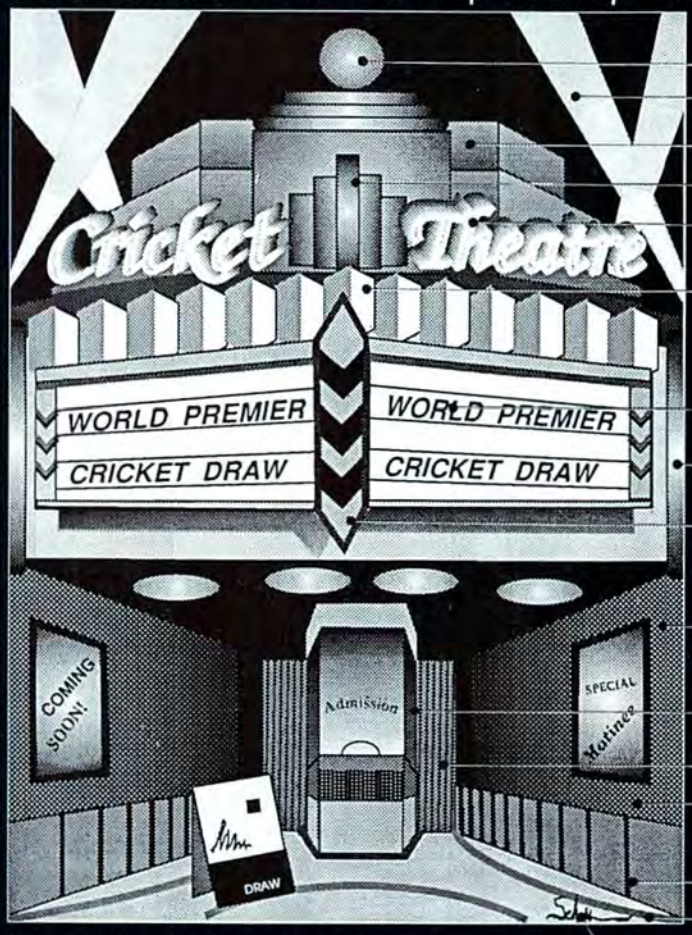
Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	■ ■ ■ ■ □
On-Screen Help	■ ■ ■ ■ □
Performance	■ ■ ■ ■ □
Support	■ ■ ■ ■ ■
Consumer Value	■ ■ ■ ■ □

Comments: Powerful presentation worksheet with a large set of mathematical functions and the ability to integrate graphics, with color support. **Best Features:** The comprehensiveness of the built-in functions and the ability to integrate graphics in spreadsheet-like structures. **Worst Feature:** The icon bar, which can be difficult to master and awkward to use. **List Price:** $149. Published by Data Tailor, 1300 S. University Drive, Fort Worth, TX 76107. (817) 332-6836. Requires 512K RAM, 128K ROM. Not copy protected.

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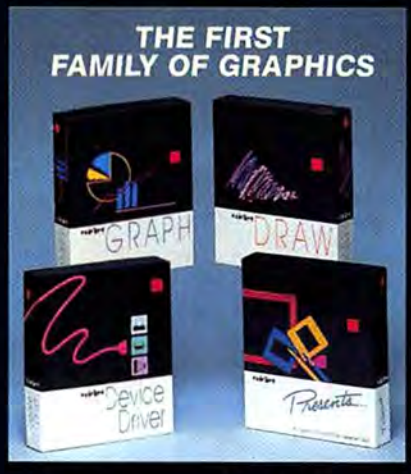
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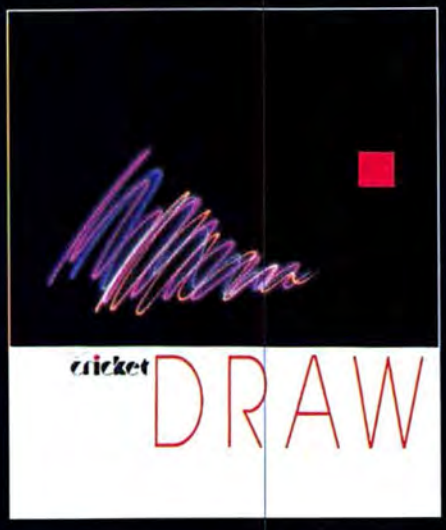
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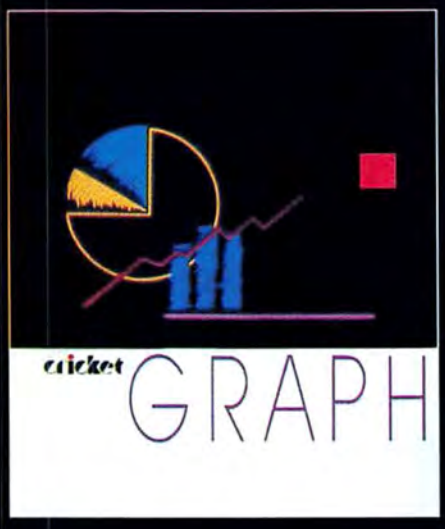
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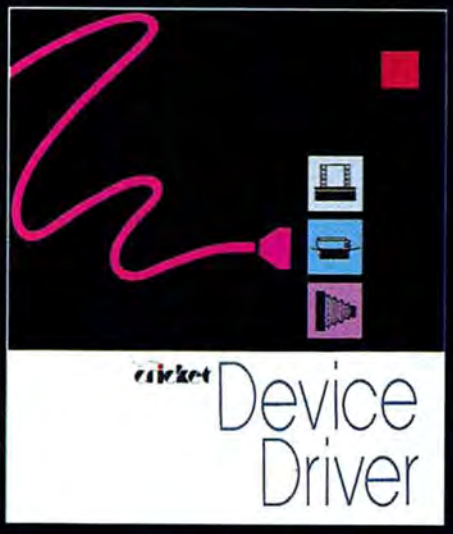


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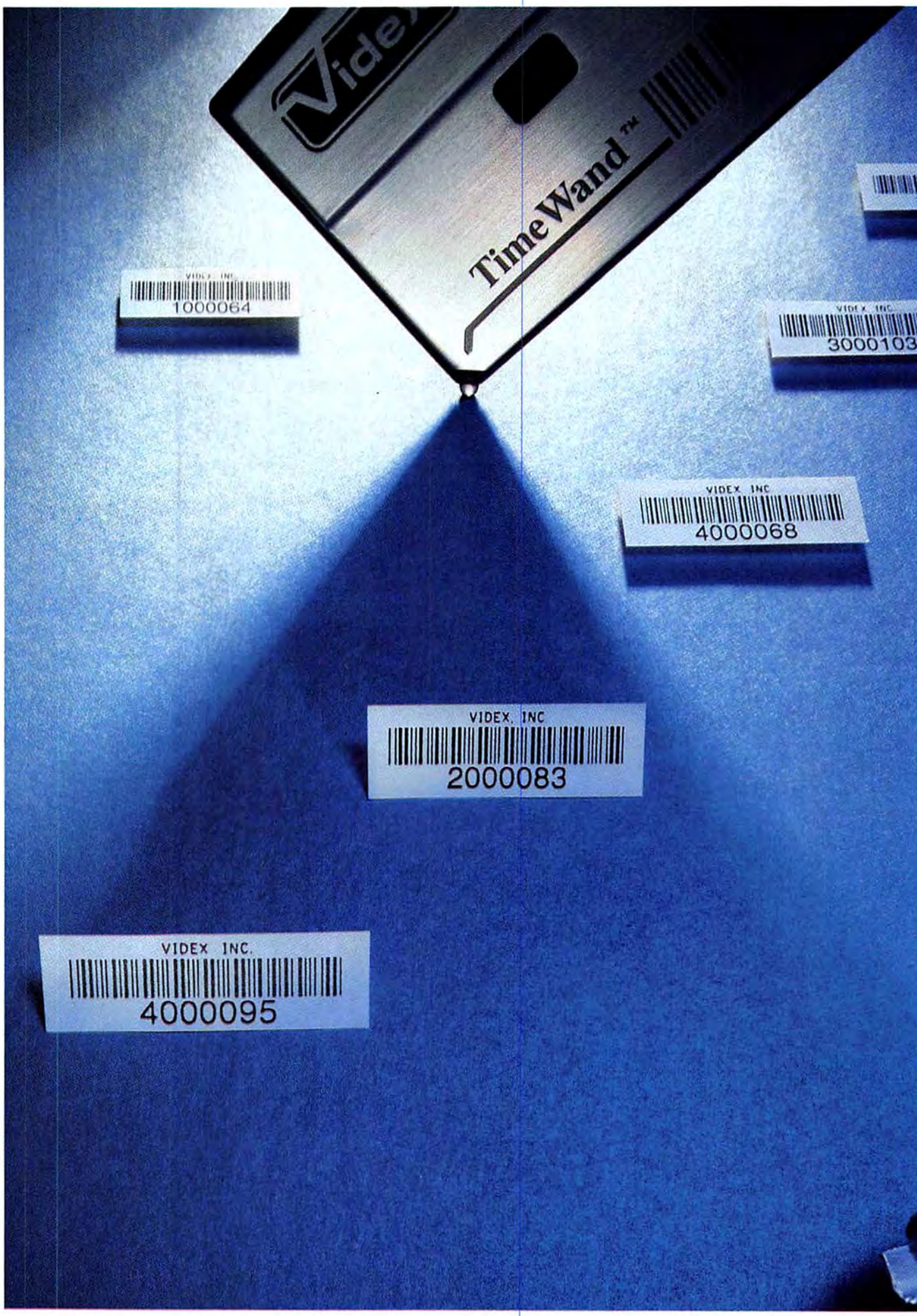
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GARY BUSS

Up Against the Wand

When time and pressure conspire against you, the Videx TimeWand Barcode Reader accurately keeps data entry sure and simple.

IT WAS A SMALL CHILDREN'S BOOK and toy store, but even so it carried over 4,000 items in inventory. Shipments came in almost every day, except during the big fall season because most of the Christmas inventory had already arrived by late summer. Whenever a shipment came in, each item had to be logged by hand in the ledger book that kept track of the inventory.

At the point of sale, customers' receipts were handwritten so that each item could be properly recorded. At the end of each day, sales were entered in the same ledger, to keep the inventory current.

This tracking process was effective, but very time consuming. The store was run by the owner and one full-time manager. Often, the manager was alone in the store for long periods of time. At busy times, there was no one available to process shipments, so they often went unopened for a day or more. Worse, all the records were handwritten and required a tremendous amount of time to evaluate. It was clear that the store needed to computerize and find a way to improve the inventory procedures.

Several inventory packages were evaluated. Each had some positive benefits for the store, but they all required nearly as much manual input as the handwritten method. A point of sale system that could print receipts and track items sold was tried, but items received still had to be keyed in by hand, and it was difficult to keep track of exactly when a shipment had arrived.

The owner read somewhere about barcode readers for small computer systems, and did some investigation. Most of the tools available were light pens that had to be connected directly to the computer to work. This would have been fine if the store only wanted to track outgoing items, but wasn't very convenient for recording incoming shipments. They really needed a portable reader that could download its stored output into the Macintosh after closing, or before opening the next day when there were no customers in the store.

Finally, the owner noticed an advertisement for a product called the TimeWand, a credit card-sized, portable barcode reader for Macintosh. Soon, a TimeWand was in operation.

Although some of the items the store carried still had to be entered by hand, most of them had a UPC symbol that could be scanned with the TimeWand. As a shipment came in, each item was scanned and then put on the shelf. The TimeWand kept the data in memory until the end of the day, when it was downloaded into the Macintosh and recorded in the inventory data base.

Not only did the TimeWand replace the tedious handwritten entry

BY MICHAEL D. WESLEY

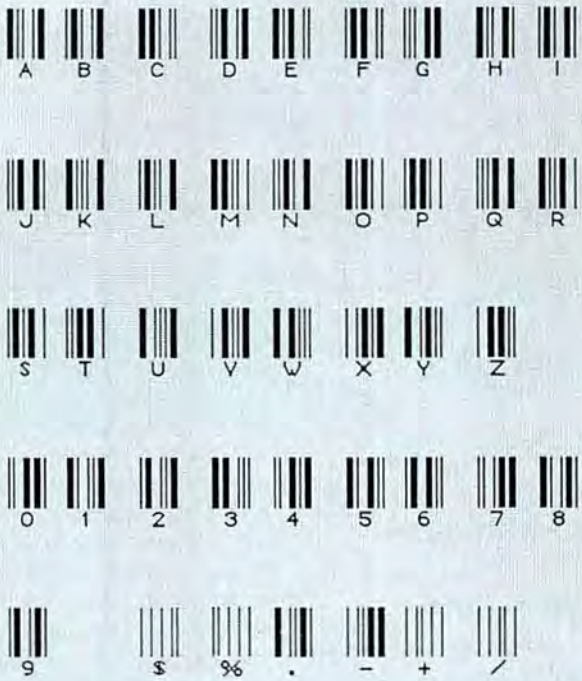
Barcoding A Special Font

Videx includes a barcode font in three sizes (9, 18 and 24 point, shown) that you can use to print your own barcode labels on an ImageWriter or laser printer.

To generate a space between codes on the same line, you need to insert a tab. Pressing the space bar leaves a space on the screen, but the codes are printed without spaces.

Preprinted bar code labels are also available, and several pages of preprinted labels are included at the end of the TimeWand Systems Software manual.

The TimeWand can be configured to read Universal Price Code (UPC) in addition to Code 3 of 9, shown here. This is useful for point of sale or inventory applications.



TimeWand's Code 3 of 9 Font

system, but it gave the store much more useful information about each shipment, including when the shipment was opened, who opened and recorded it, whether it was all recorded by the same person or not and whether it was all recorded in one session or several.

WITH A WAVE OF A WAND

Although the TimeWand from Videx has been available for the Macintosh for over 2 years, few people know about the product or are aware of its potential applications. In fact, Videx has had a difficult time marketing the TimeWand because the uses are so varied and broadly based that it's difficult to pin down a specific "market" for it. Point of sale and shipping applications are fairly obvious, but the portability of the TimeWand has opened a whole new range of applications that Videx never anticipated. Now, many of Videx's customers spend a good portion of their time describing their barcode systems to others.

A LITTLE BIT OF MAGIC

There isn't much to look at with the TimeWand. It has an attractive metal case, with no keypad or standard data entry system, just a tiny optical sensor in the lower left corner and a small black button on the front. The TimeWand is small: 3⅜ inches long, 2⅛ inches wide, 5/16 inch high, and it weighs less than 2 ounces. It fits neatly into any pocket and is sturdy enough to be carried around all day, even in the rough-and-tumble of an active construction site.

The TimeWand comes with 2K, 8K or 16K of RAM, an internal clock chip and a beeper that plays a variety of tones to indicate a successful scan or to identify problems such as a full memory. Rechargeable NiCad batteries keep the scanner working and the memory intact for up to 3 days, but normally you should recharge the TimeWand each night after downloading. Full recharging takes between 10 and 14 hours.

The recharging unit is a small plastic box that also serves as the transmitter to download TimeWand data into the Macintosh. It connects to the Mac through either serial port. The modem port is the default configuration and is recommended, especially if you're on AppleTalk. Included in the package are two fasteners that let you stick the recharging unit to the side of the Mac, if you want.

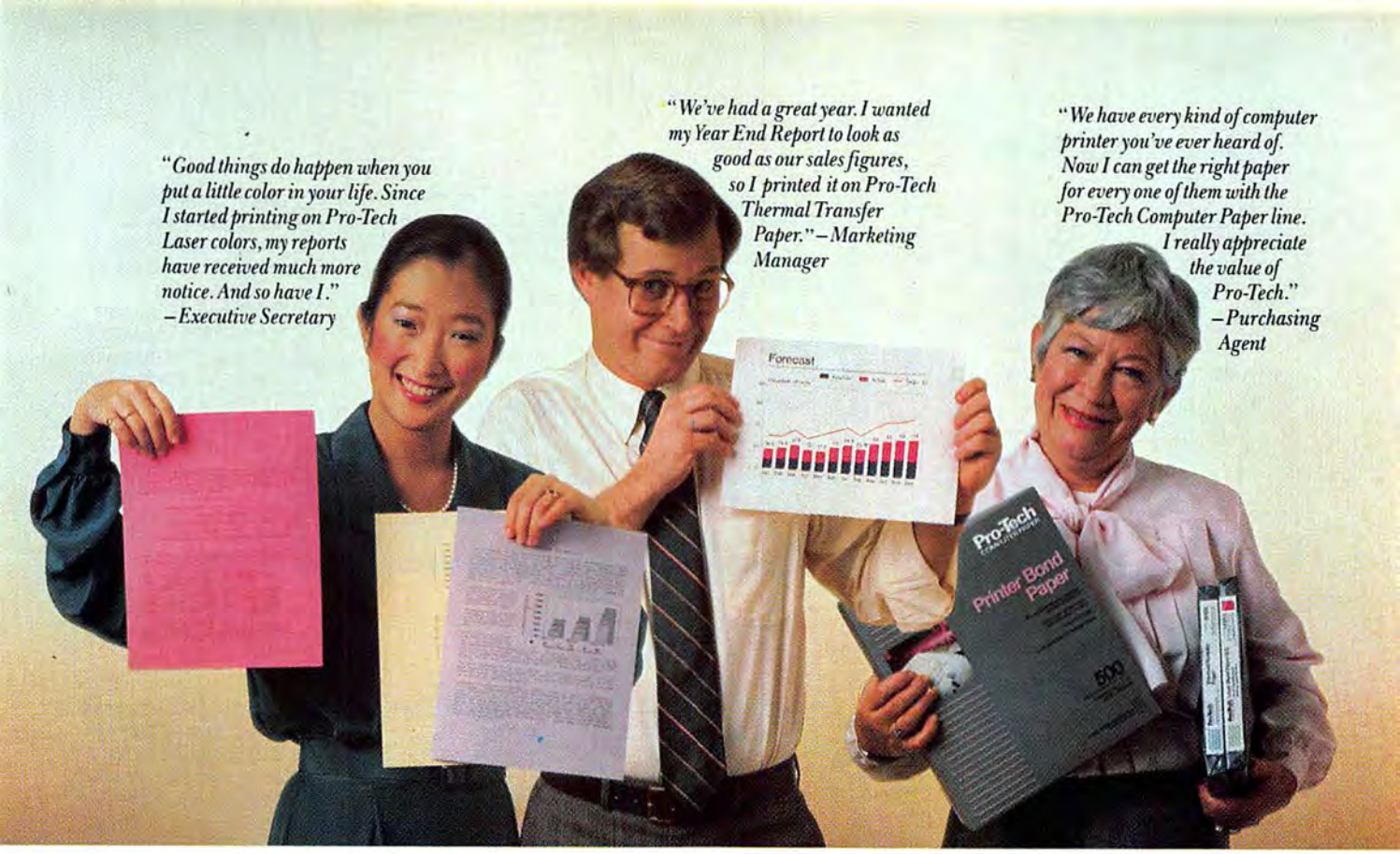
The TimeWand is very easy to use, once it has been set up and configured properly. The most difficult aspect of its use is figuring out the best way to record and format the data you want it to collect.

OF LEVELS AND BUCKETS

The TimeWand can handle scanned information in one of two ways. The first is hierarchical, using what the manual calls Levels. In hierarchical format, the TimeWand expects codes to be entered in a preset sequence, and prevents you from bypassing the sequence. The first item to be scanned is assigned Level 1, the second Level 2, and so on. The data collected for each level is assigned to a separate column in a data file.

Using the bookstore example above, let's look at a procedure you could use to scan a box of books that had just arrived from a distributor or publisher. Since the TimeWand automatically time and date stamps each scan, the time and day don't have to be entered or scanned manually.

The first thing to record is the person (employee) who is using the scanner and opening the box. This is Level 1. The next important piece of



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Up Against the Wand

data is the shipper, so this is assigned Level 2. The third item to be scanned is the type of shipment (books, toys or mixed), which will be Level 3. Finally, the received items are all scanned individually at level 4. The structure of the data looks like this:

Employee
 Shipper
 Type (book)
 Item
 Item
 Item
 Type (book)
 Item
 Item

Employee (if it took 2 people to complete the unpacking).

With this hierarchical setup, the TimeWand would require the employee's code to be scanned first, followed by the shipper, the type, and then the item. You can set the TimeWand to require all steps for each pass (1,2,3,4, then 1,2,3,4 and so on, with no skipping). This is called a Group Hierarchy. Or you can set it to carry the highest levels forward so that you only have to scan the employee's name once for each shipment, as shown above (a simple Hierarchy).

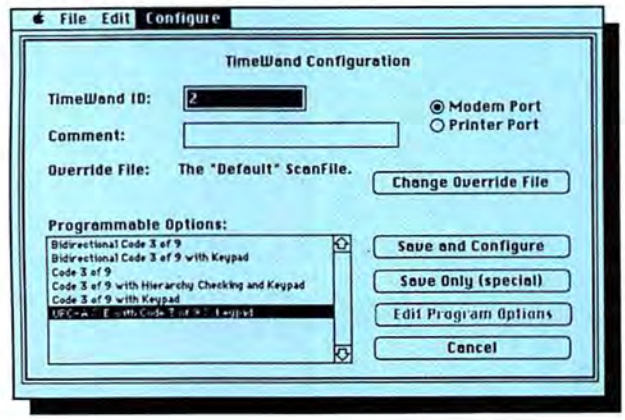
In this case, the TimeWand still requires the codes in sequence, but you can skip Level 1 and Level 2 on the second pass. The only thing you can't do is skip codes as you go *down* the tree (for example, you can't scan Level 1, Level 2, Level 4). If you try to scan a code out of sequence, the TimeWand beeps to let you know there has been an error.

The hierarchical set up is necessary and valuable whenever you have a series of actions that must be scanned in a particular sequence. There are times, though, that you might want to be able to record scans in any order and have them go to the right place. You can do this by setting the TimeWand to save data in Buckets, instead of levels. Like levels, buckets relate to individual columns when your data is processed. Unlike levels, buckets allow you to enter scans in any order.

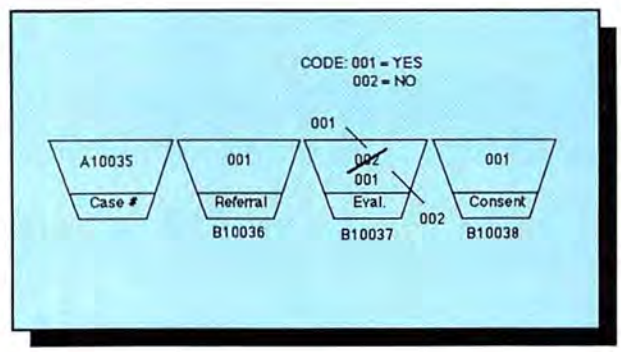
Here's an example. A small nonprofit organization works with kids in a federally funded program. The government has strict requirements for paperwork on each child being served. There must be a referral from an official at the child's school, a formal evaluation performed by a qualified staff member, a parental consent form, and various other odds and ends that must be completed before a child can be accepted into the program.

Using buckets, the pieces of the paperwork puzzle can be scanned in any order until the list is complete. Each bucket is a field in a completed record, so there would be a bucket for evaluation forms, a bucket for referrals, and so on.

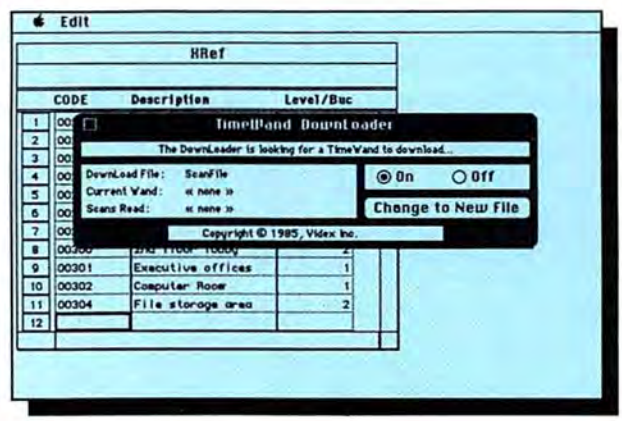
A bucket holds only one piece of information at a time. If you scanned the code that signified YES to indicate that a referral form had been turned in on a child, then found that the form hadn't been turned in yet, you could rescan the code NO for the referral bucket before processing the record and the NO scan would replace the YES.



Before a TimeWand can be used, it must be configured. This process gives the TimeWand an ID number, and configures the type of barcode the TimeWand will scan. The highlighted option scans both 3 of 9 (a special font is included with the software so you can print your own coded labels in this format) and UPC (Universal Product Code), the codes required on most retail items. Normally, the TimeWand scans only left to right, but it can be configured to scan bidirectionally as well.



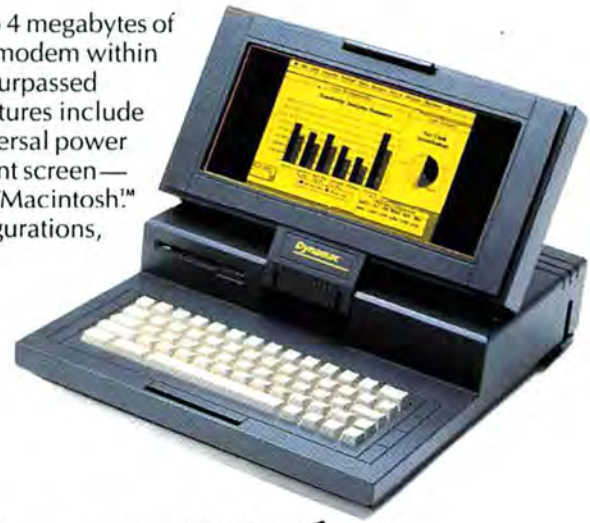
Using buckets instead of levels allows you to enter data in any order. The A in the case number code could indicate that this is the first and key bucket. Each time a new case number is scanned, the current entries are saved as a record, then the buckets are emptied.



The *TimeWand Downloader* is a desk accessory and may be the best part of the whole package. Quick and easy, the *Downloader* dumps all of the scanned codes into a scan file which can be dumped directly into the *TimeWand Manager*, or an ASCII file that can be manipulated by most Mac data bases.

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Up Against the Wand

A record is processed when a new entry is made to a key bucket (usually bucket number one). In the example above, you could make the child's case number the key item, so every time a new case number was scanned all the buckets would be saved as one record, the new case number would replace the value in the first bucket and all the other buckets would be emptied.

Both the hierarchy and bucket methods have several options so you can be as flexible or as precise about data collection as you want. Once you have decided how best to manage your information, you need to set up the TimeWand itself and the files you'll be using to manipulate the raw scanned data.

CASTING A SPELL

The TimeWand comes with several applications. The first one you'll use is *TW Configure*, a short configuration program that sets scanning parameters for a new TimeWand. The TimeWand can scan a standard form of barcode called Code 3 of 9. Videx includes a font for Code 3 of 9 in three sizes. You can install the font as you would any other, and use it to print your own barcode labels from an ImageWriter or a laser printer. Some labels are included in the manual, and there is a list of vendors who sell preprinted barcode labels as well.

You can also configure the TimeWand to scan UPC (Universal Product Code) symbols. This is useful in retail applications like the one mentioned at the beginning of the article.

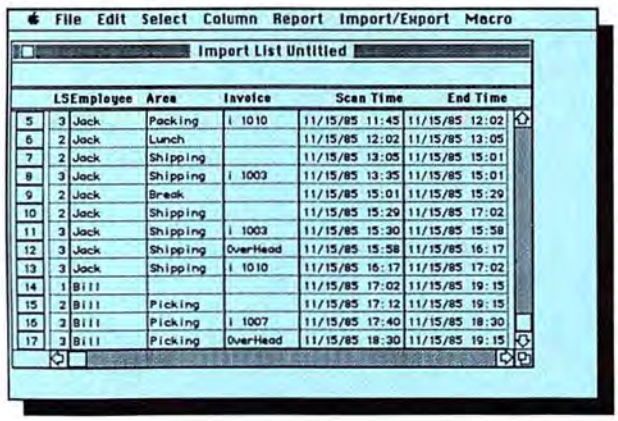
The second application you'll use is the data base manager called *TimeWand Manager*. Although Videx sells TimeWands for IBM and Macintosh, this application is unique to the Mac. Videx assumes that IBM PC users are already using a data base like *dBase III* as their standard vehicle for data manipulation, but that Mac users may not have a primary data base program. While this might have been a valid assumption when the TimeWand first came out, I don't think it is any longer.

In any event, the *TimeWand Manager* is a fairly powerful and complex piece of software specifically designed to handle TimeWand data. It's a good idea to start with *TimeWand Manager* to get a clear understanding of how the TimeWand handles data. After working with it for a while, though, you may decide that it would be easier and more practical to save your scan files as ASCII text and export them into *OverVUE* or *File* or another data base that's a bit easier to use. Another option is to use *TimeWand Manager* to attach values to the scanned codes first and put the data into columnar format before exporting.

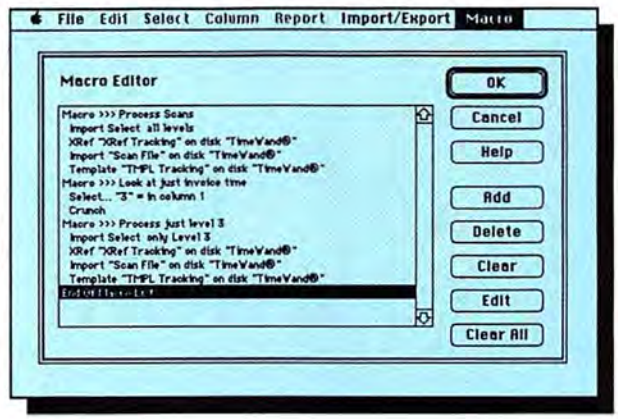
With *TimeWand Manager* you set up a file called the cross-reference (XREF) file. This file lists and defines the specific barcode values you'll be scanning in a particular application. Each value scanned is attached to a column in a data file according to your hierarchy or set of buckets.

SCANNING THE HORIZON

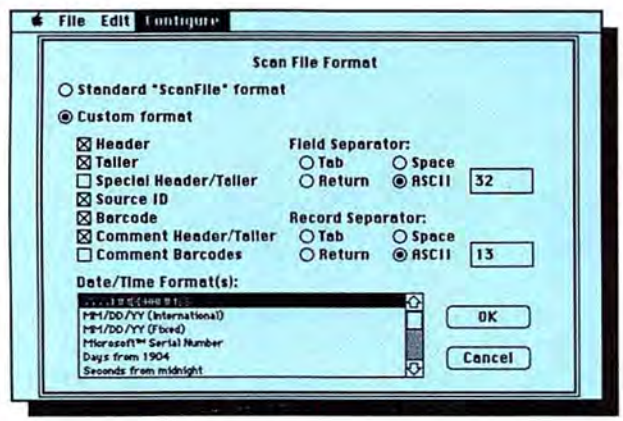
The TimeWand has to be initial-



The Work File, which is also called an Import List (terminology is sometimes confusing). This file is the result after a scan file has been worked over by the *TImeWand Manager*. The names and descriptions are pulled from the XREF (cross-referenced) file where the values were originally assigned to each code.



The *TimeWand Manager* has a macro editor that lets you automate downloads, cross referencing, even report generation. It's fairly easy to build and edit macros.



This dialog box lets you configure the scan file into a variety of different formats for later manipulation with a data base program other than *TimeWand Manager*. The settings shown are the defaults for a standard TimeWand scan file.

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Up Against the Wand

ized and charged before use, so you should punch it into the recharger while you're doing all the data organizing. Then, with all the files ready to go, you can take the TimeWand out and start scanning.

Scanning a code is quick, simple and, I must say, fun. The TimeWand is held at an angle of about 45 degrees so the small, tube-shaped optical sensor is fully exposed. The manual says the TimeWand should be held vertically to the barcode label, but you can actually tilt it quite a bit and still get the code to scan.

To read a barcode label, you press the button on the side of the TimeWand and drag the sensor across the label, left to right (unless you configure the TimeWand for bi-directional scanning). A successful scan is rewarded with a short beep and the flash of a small green light in the top of the unit. If a code is not recognized, there is no tone. And if a code is read out of sequence in an hierarchical setup, the TimeWand emits a low warning tone. Tones also indicate that the TimeWand's memory is almost full or full. A 16K TimeWand can store about 2000 barcodes, an 8K unit about 1000. That should be more than enough for most applications.

A 16K TimeWand can store about 2000 barcodes, an 8K unit about 1000. That should be more than enough for most applications.

TAKING IT TO THE MAC

Scanned files are downloaded from the TimeWand with a desk accessory called *TimeWand Downloader*. The *Downloader* is a nifty piece of software, very capable and easy to use. Since it's a desk accessory, you can download from within any application.

The scan file is a collection of raw data. To use the data in some meaningful fashion, it has to be massaged in a data base. This is the second function of the *TimeWand Manager*. The *Manager* merges a scan file with a cross-reference file and builds a table that attaches specific values to the codes that have been read.

The table is called a Work File, or an Import List . One of the problems with the *TimeWand Manager* in particular, and the TimeWand documentation in general, is that terminology is often very confusing. "Import List" and "Work File" are used interchangeably, and there's no apparent reason for two separate names.

The Import List is a row and column display of a scanned file after the data have been cross referenced. While the scan file itself is just a list of bar codes, the Import List attaches a value to the codes, such as a person's name, a location, a category, a number, and so on and places all the information in the correct column (as defined in the hierarchical or bucket setup). Each row in the table is one complete record in the data base.

The *Manager* is more than just a simple row and column filer, though. It has some of the abilities of a spreadsheet, so you can build formulas into blank columns to calculate values based on scans or perform evaluations on the data. You can also see an import list in bar graph form, with an option called Time Bars. This is useful for tracking the amount of time spent on a particular task.

And *TimeWand Manager* has a macro editor, so you can create macros to automate data manipulation. You can, for instance, write one macro to download scan files, execute a cross reference, perform calculations and generate a report. The macro editor is somewhat confusing but quite powerful.

Unfortunately, like many powerful data bases, especially those found on *other* computers, *TimeWand Manager* is quite complex and difficult to use. The documentation is fairly thorough but very confusing. The explanations are often unclear and may take several read-throughs before they make any sense at all. Perhaps the best way to use *TimeWand Manager* is to let it cross reference a scan file and build a table, then export the table to another data base that's easier to use.

Once you've had a little experience with the TimeWand you may want to bypass the *Manager* altogether. To do this you change the parameters of the scan file so the downloaded data can be exported directly to another data base. Several TimeWand users that I spoke to have taken this approach.

THE MAGIC OF THE WAND

The use of barcodes in business is just beginning. It has already had a profound impact on large scale retailing. But people are finding new uses for the TimeWand that Videx never dreamed of. For example:

1. Tracking behavior modification programs in a school for the developmentally disabled. John Eiler of Fircrest School in Seattle has done seminars across the country on the use of barcodes in medical records applications.

2. The city of Sunnyvale, CA uses the TimeWand for building inspections.

3. Several schools and businesses uses the TimeWand to track security guard patrols.

4. Construction firms use the TimeWand to track materials, and also to record progress on a site.

5. Small professional firms use the TimeWand to handle client billing, track employee time, and simplify document handling.

The TimeWand is a neat little gadget but can also be a great time saver for almost any application that requires constant tracking of time, events, paperwork, materials, and so on. Take a close look at what your business does every day. Maybe there should be a TimeWand in your future.

MICHAEL WESLEY IS A CONTRIBUTING EDITOR OF *MACUSER* MAGAZINE AND OPERATES THE WIZARD'S WORKSHOP, A MAC-BASED PRIVATE SCHOOL FOR GIFTED CHILDREN, IN SONOMA, CA.



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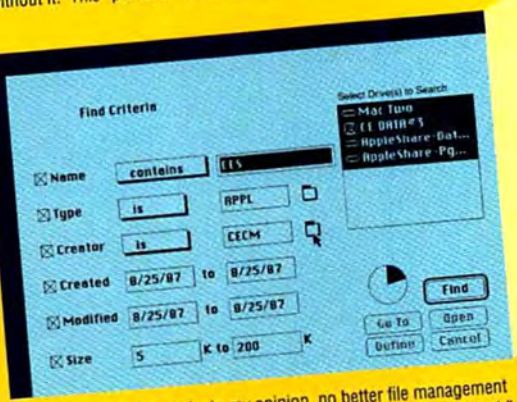
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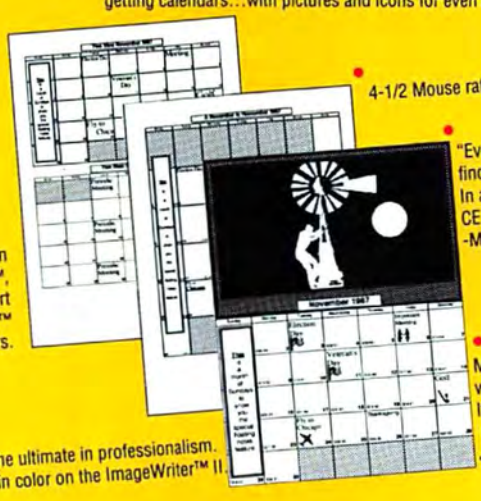
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A Perfect 10

The fabled Red Ryder 10.0 — a long time getting here — is the top Mac telecommunications program.

BY ROBERT R. WIGGINS AND STEVEN BOBKER

ONCE UPON A TIME THERE WAS A cute little beige computer that wanted to communicate with all the other computers. Along came little *Red-Ryder* to help out. *Red* huffed and puffed and blew the barriers. . . .

Oops, sorry, wrong Mac tale there.

It was a dark and stormy night, a night like those just before it. Many Macs were hooked to phone lines and many copies of *Red Ryder*, version 9.4, were busily working away. After all, *Red Ryder* 9.4 wasn't the most popular Mac telecommunications program for nothing.

But something was amiss. It wasn't perfect. It wasn't worth a 10 yet. The problems were subtle, most noticeable to people communicating at high speeds (2400 baud and up) or using the new big screens.

Still, the people were content to wait patiently, because they knew *Red Ryder* 10.0 was on the way. And that the 10.0 would be more than just a version number. Then all would be well.

And so it came to pass.

WAY BACK WHEN — A GENEALOGY

Red Ryder has come a long way since its initial release in 1984. Back then it was a *MS-BASIC* program. You needed to own a copy of *BASIC* to run it. Still, it was one of the first communications programs for the Macintosh, and also one of the first shareware products in the Mac market. *Red Ryder*'s lineage includes two different creators, the late Wat Buchanon who wrote *Red Ryder* 1.0 in *BASIC*, and Scott Watson, who took up the baton after Wat's untimely death and carried *Red Ryder* into the world of standalone application programs. Wat and Scott created a program with a mystique and unique character rarely seen in any professional quality program. And have no doubt that *Red Ryder* is a

AKIO MATSUYOSHI



Test Riding Red Ryder

While *Red Ryder,* version 10.0, is a regular commercial program, with all that entails, you can get a pretty good feel of it by trying out version 9.4. That version is still widely available as shareware (some earlier — lower numbered — versions are also still available, but you should decline such gift horses).

Version 9.4 doesn't have as many features as version 10.0, it's not quite as slick, and while it has been the most popular Mac telecommunication program, it's not as good as version 10.0. For one thing, there's no up-to-date, useful manual to speak of. But it's fine for tryout.

And there are lots and lots of great, already debugged procedures available — procedures that you also use with version 10.0 by following the directions in this month's *Tip Sheet.*

Please don't ever forget that version 9.4 is shareware — not free. That means that if you continue to use it and don't purchase version 10.0 (or another program), you have to pay the price requested for it. You needn't pay until you try it and decide to keep it, but then pay you must. It was the concept of shareware and the adherence to it by so many satisfied users that let this program prosper and grow to what it now is. Don't betray it now. — *SB*

professional quality program, and has been for a very long time. In spite of the chattiness and quirkiness of the early manuals, there is nothing amateur about the early *Reds,* especially about their performance.

It was this "personality" and the unorthodox distribution method that made the program seem somehow inappropriate to many business users. While *Red Ryder* in its many guises became far and away the most popular and most frequently used Mac telecommunications program, it has never had much success in the increasingly important business marketplace. Even though the version before this one, version 9.4, was as capable a telecommunications program as could be found, business users tended to stick to the "name" products like *MacTerminal* (Apple's underpowered and seriously outdated telecommunications program) and *Smartcom II* (a winner by the large modem maker, Hayes).

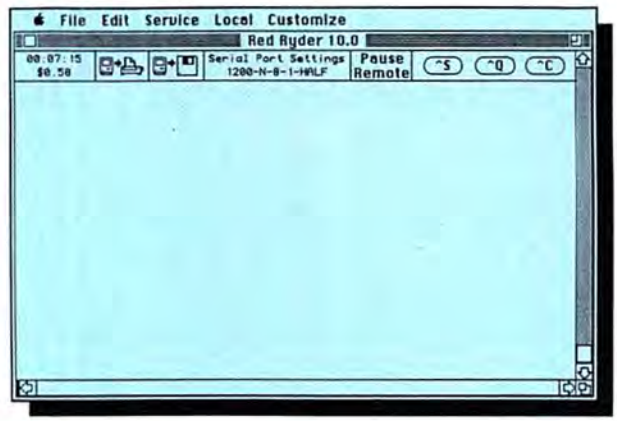
Red Ryder 10.0 is a whole new ball game. It's now a commercial product, with a printed manual, and your dealer will (or certainly should) be carrying it. While it retains some of the unusual flavor of the shareware editions, version 10.0 has been totally redesigned to eliminate most of the idiosyncrasies — and those that survive are at least documented.

A PROGRAMMATIC MAKEOVER

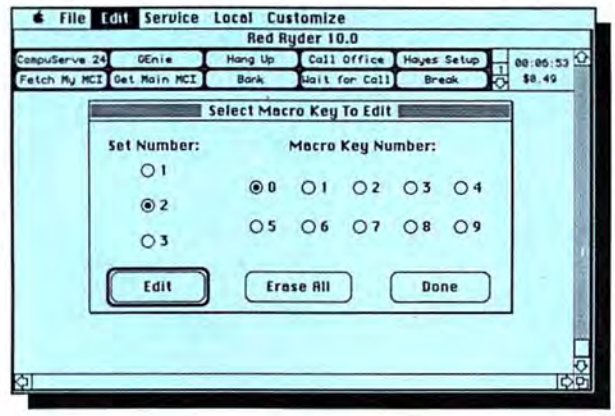
Version 10.0 is a complete, top-to-bottom overhaul of *Red Ryder.* Virtually every detail and feature has been optimized and improved. Its menus have been restructured for clarity, its terminal window has been transformed into a real resizable and movable window, and even its dialog boxes and status bars have been improved cosmetically. In the critical area of speed, it has been completely rewritten to allow much faster screen updating. Users now have the ability to select different fonts and sizes for their screen display (including the ability to use proportional fonts). This is particularly useful for anyone with eyesight problems. You're no longer restricted to one or two small fonts. You can now use whatever you can read best.

Red Ryder 10.0, like its predecessors, can emulate a plain ASCII TTY (teletype) terminal or a DEC VT52 or VT100 terminal. Its VT100 emulation is very good (call 1-800-DEC-DEMO to see exactly how good), but its TTY mode is actually more powerful, since many options, such as font selection, are not permitted in VT100 or VT52 mode.

An unusually wide choice of file transfer protocols is available. You'll find full support for the MacBinary format when uploading and downloading using XMODEM, YMODEM, or Kermit. The program also supports the CompuServe "B" protocol for downloading (again with MacBinary), as well as RLE graphics,



First Look
This is the screen you first see when you get into *Red Ryder.* The timer/taxi meter at the left will keep you aware of how much you're spending when connected to an electronic service that charges by the minute. The control buttons on the right are fully editable, as is almost everything you see here and anywhere else in *Red Ryder.*

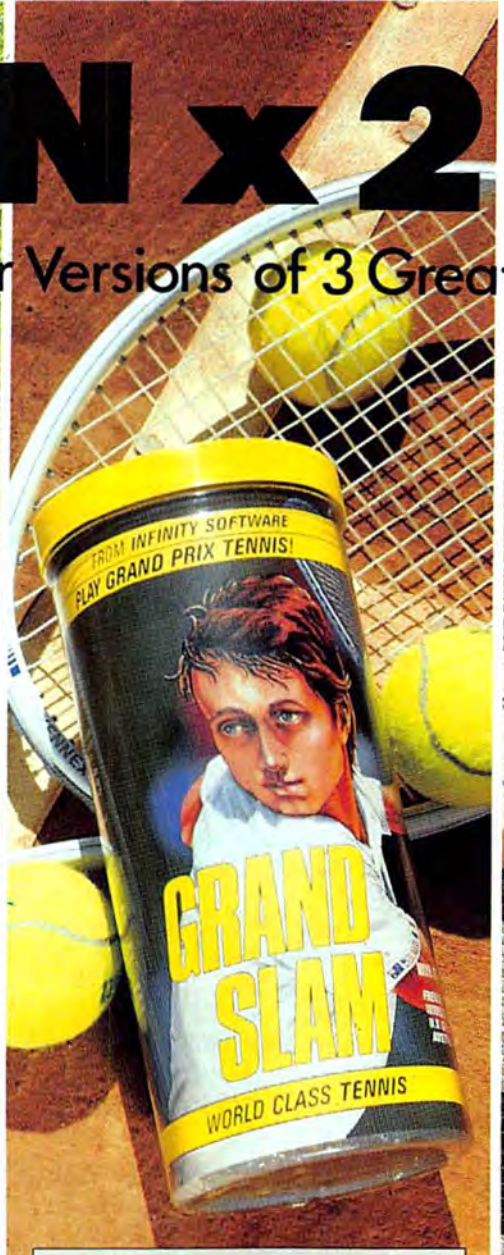


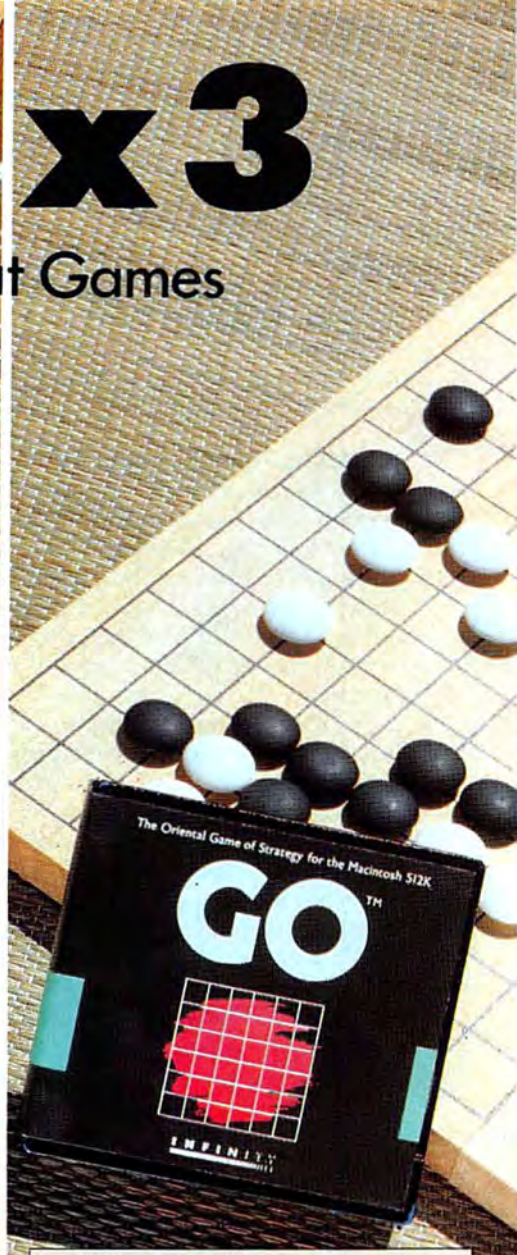
Macros
Here a macro set replaces the general status bar. Just click on a macro button and it will do whatever you have set it up for. The dialog box shown is where you select macros (when either creating them or editing them).

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which, like "B" protocol, are used on CompuServe.

Red Ryder can also send ASCII text files, and offers a variety of methods for capturing ASCII text. And it fully supports Copy and Paste for capturing and sending text as well.

AUTOMATIC TRANSMISSION, TOO

Red Ryder was always known for its comprehensive and powerful procedure language. Version 10.0 expands it even further. The procedure language includes full conditionals and variables. You'd be hard pressed to find an event that a procedure can't be written to handle. Don't kid yourself though, it's not all *that* easy. *Red Ryder*'s procedure language is a full-blown programming language and takes study to master.

Fortunately, there's an out for users who don't have the time or inclination to master it. You don't even have to rely on other people's work. That's because *Red Ryder* will generate a procedure itself by watching the prompts generated by a remote computer and your responses to them. The procedures that you write, obtain, or let *Red* create for you are now compiled for faster execution.

There's also an extensive macro command facility. You can access three different groups of macros, each of which has space for ten different macros. And each macro can be very simple, or used to invoke compiled procedures.

If you need more than the 30 macros always available, you can create and save as many others as you want (in sets of ten). Then simply swap them in as needed with the Load Macro Set command.

LITTLE RED'S BLACK BOOKS

Red Ryder encourages you to create phone books (lists, really) that contain the phone numbers of frequently called people and services. The phone numbers you call can and should be linked to procedures, which will be executed once the number has been dialed. The linked procedures can be as simple as a redial and skip to another number if busy, and as complex as a complete automated call, fetch messages and new material, and hang up. As an added bonus, you can even store brief notes with each phone book entry.

If that isn't enough to keep your phone busy most of the time, *Red Ryder* offers its "host" mode, which lets you set up a limited personal electronic bulletin board system (BBS). That's useful for sending or receiving files to and from your Macintosh when you're away, or for allowing friends or colleagues to get or send files when you're not at the computer.

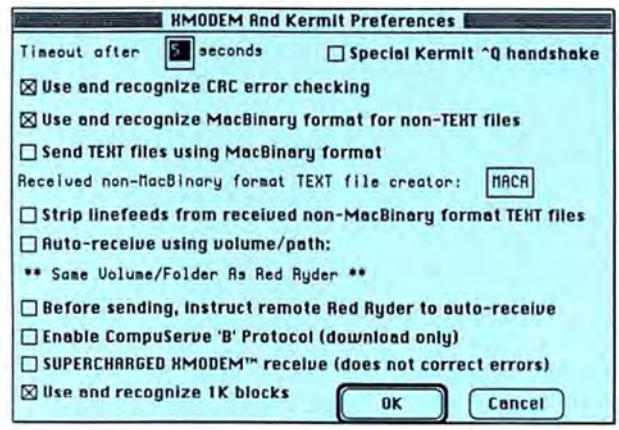
FLEXIBILITY EXERCISES

Red Ryder has always been designed to be as flexible as possible, to accommodate any unusual requirement of any user. That laudable flexibility is part of version 10.0. Almost every setting is optional and can be changed (either in a menu or by a procedure).

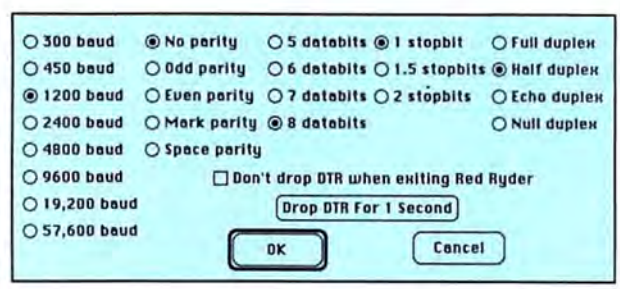
For example, *Red Ryder* does not assume it is speaking to a Hayes-compatible modem. That allows it to be used with almost all brands of modems, a feature not shared with too many other telecommunications programs. *Red Ryder* even gives you the choice of sending control codes via the Option key or the Command key. Using the Command key is what the Mac interface calls for and is more natural to most users most of the time. However, Command keys may cause problems if you're connected to a remote computer. Lots of other telecommunications software will interpret Command keys in an entirely different way than you want — or expect — them to. If you're connected to another Mac, go ahead and use the Command key option; if you're not, be safe and use the Option key for your *Red Ryder* command equivalents.

BACKING IT UP

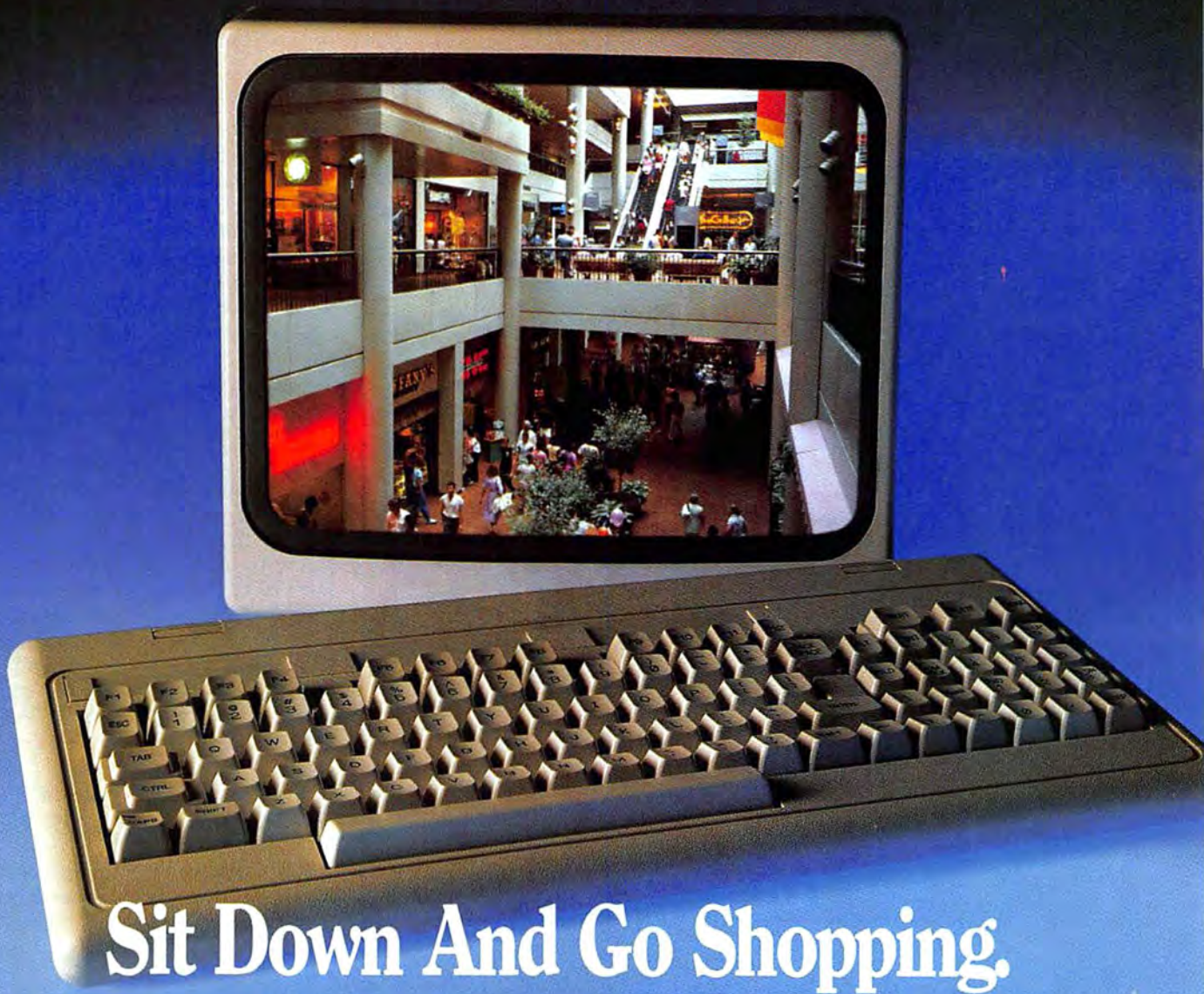
Another thing *Red Ryder* has always offered to its users is exceptional support. This was true even when the whole company was Scott himself. Even now, this most popular of programs is well-supported. Don't be at all surprised if you call for help and wind up in a philosophical discussion with the author as to what the next version of *Red Ryder* should include (after your original question has been answered, of course).



File Transfer
This rather full dialog is where you choose your XMODEM and Kermit file transfer options. In spite of the number of items and options covered, it is well designed and can be used intuitively. This is what the Mac interface is all about.



Do It Your Way
If you used earlier versions of *Red Ryder*, you remember the click-on-the-numbers way of setting your communications parameters. You may have thought, as I did, "There's got to be a better way." There is. Here's the parameter setting dialog box from version 10.0.



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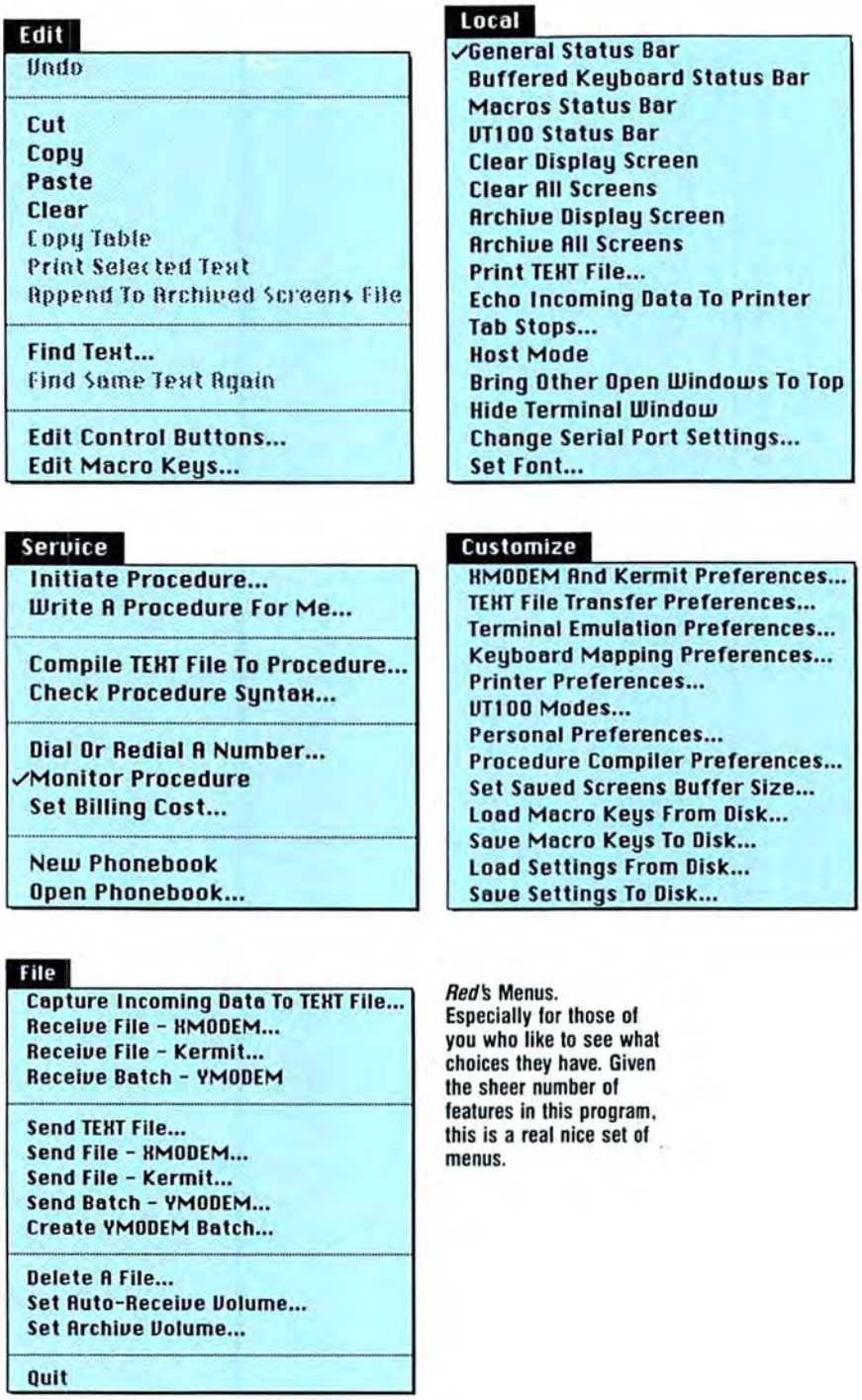
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A Perfect 10



Red's Menus. Especially for those of you who like to see what choices they have. Given the sheer number of features in this program, this is a real nice set of menus.

WHAT GOES UP, COMES DOWN

Red Ryder's strengths also constitute a major portion of its weaknesses. Since it offers so many options and so much flexibility, it can take some time to learn all of its capabilities. While the manual ameliorates this somewhat, with simple to understand explanations of most of the features, it's not good enough. Lots more examples (both on disk and in the manual) are needed. This is a programming language we're talking about here. A good tutorial would be nice, also. The manual isn't bad, but could stand a nearly complete rewrite.

A few things are still missing. A command to toggle full Hayes compatibility on and off would be greatly appreciated. And, if the program can't convert version 9.X procedures directly into version 10.0 procedures (it can't), the manual should at least give explicit instructions on how to do so (it doesn't — however, see this issue's "Tip Sheet").

We'd also like to see a better discussion and more examples of connecting to remote systems. Set-ups for connecting to IBM PCs, Apple IIs and some of the more popular minicomputers would enhance the business value of this product.

If anything, *Red Ryder* makes a few too many assumptions as to how good at the black art of telecommunications its users are to begin with. If it's right about your level of expertise, you'll find it nearly perfect. If it's not, you are in for a somewhat rough time until you master it. But right now, and especially for terminal emulation of a TTY, VT52 or VT100, *Red Ryder* is the best of the pack.

So the moral is: "With *Red Ryder* you'll communicate happily ever after."

[This article began life as a review in Robert Wiggins' *Macintosh Business Letter*. It was totally rewritten for *MacUser*.]

ROBERT R. WIGGINS EDITS AND PUBLISHES THE *MACINTOSH BUSINESS LETTER* AND IS A CONTRIBUTING EDITOR OF *MACUSER*. STEVEN BOBKER DOES ODD JOBS AROUND THE *MACUSER* OFFICES.

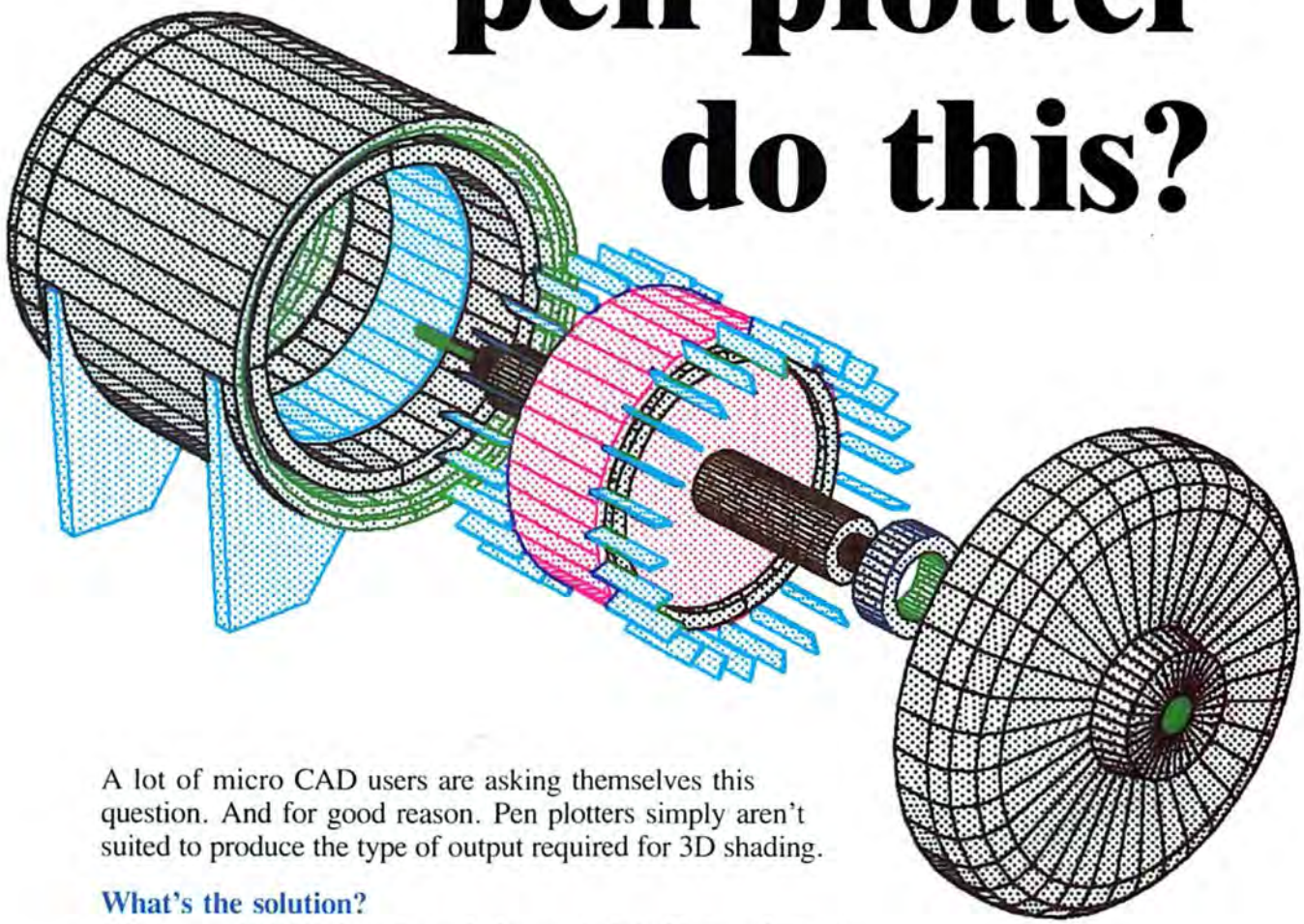
MACUSER RATING

Red Ryder 10.0 ★★★★★

Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	■ ■ ■ □ □
On-Screen Help	None
Performance	■ ■ ■ ■ ■
Support	■ ■ ■ ■ ■
Consumer Value	■ ■ ■ ■ ■

Comments: Its combination of power and ease make this the best Mac telecommunications program. **Best Feature:** Automatic procedure generation lets nonprogrammers take advantage of powerful built-in language. **Worst Feature:** Too few examples provided in the manual and on disk. **List Price:** $80. Published by The Freesoft Company, 150 Hickory Drive, Beaver Falls, PA 15010. (412) 846-2700. **System Requirements:** RAM: 512K; ROM: Any, including Mac II. Not copy protected.

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TERRY ALLEN

Pathways and Relationships

Mock if you must. But Bach, Mozart, Velcro and HyperCard is not a bad score.

ONE DAY WE WILL ALL BLOW OUR selves up.

Of this, for most of the time, I am pretty much convinced. I hope it's not before Microsoft gets all the bugs out of *Word* 3.0 because I don't think they should get off that lightly. But it will happen. The local Planet Coroner for our Galactic sector will roll up in his official ship, take a cursory glance at the new, faintly glowing asteroid belt now occupying the third orbit out from the sun, nod curtly to himself, say "Oh yes, another freedom and democracy job," tick it off in his little book and zoom off for an early lunch.

But if he's already eaten and has a little time to kill before dinner, then maybe he will sift around in the rubble a little and ponder on what he finds. Perhaps he will be moved by it. It's even possible that he may be quite impressed. I would like to think he will feel impelled to leave a little plaque on one of the larger asteroids saying "Mock if you must. But Bach, Mozart, Velcro and *HyperCard* is not a bad score."

By the time this article actually comes out (why, with so much technology and desktop publishing and so on, does it still takes as long to get a magazine out as it does for a pig to gestate?) — where was I? Oh, yes. By

BY DOUGLAS ADAMS

the time this article actually comes out you will probably have read dozens of articles on how wonderful *HyperCard* is and will be praying that I'm going to go for Velcro, but no. *HyperCard* it is.

So why all the fuss about a program that is a less powerful visual data base than *Business Filevision*? A less powerful painting tool than *SuperPaint* or *GraphicWorks*? A less powerful hypertext editor than *Guide*? A less powerful object-oriented programming language than *SmallTalk*? A less powerful file manager than the *Finder*?

Well, I think it occupies the same niche in the evolution of software as human beings do in the evolution of life. A human can't run as fast as a horse, can't climb trees as well as a monkey, can't swim as well as a fish, hear as well as a dog or see as well as a cat. But we can swim better than a monkey and run faster than a fish. If we need to go as fast as a horse, we can ride one. If we need to go faster still we can build a car or an aeroplane or use one that someone else has built. We can find a way of doing just about anything we want to do. We can even invent Velcro.

It's the fact that we are unspecialised but infinitely adaptable that has been the secret of our stupendous success as a species. A cheetah may, after millions of years of evolution, be perfectly designed to run at a phenomenal 70 miles per hour, but it cannot use the phone — which, as we know, is often a more effective way of getting something done quickly. A giraffe that knew where the ladder was kept could dispense with a lot of troublesome vertebrae.

In other words *HyperCard* is a program that functions in the same way that human beings do. It can turn its hand to any kind of task at any moment and do it as well as most tasks actually need. And if the task is beyond it, *HyperCard* can use the phone, it can go for a ride on *Excel*, and it knows where *Illustrator* is kept.

An awful lot of what we do on the computer doesn't actually require the massive speed of *Excel* (which is a lousy Paint program) or the power of *Illustrator* (which hasn't the faintest idea who my dentist is or if I'm meant to be seeing her this afternoon). Most of the work we do does not consist of isolated Herculean tasks of calculation, or typesetting or managing the payroll of General Motors.



HyperCard occupies the same niche in the evolution of software as human beings do in the evolution of life.

The work we do rarely consists of single Herculean tasks, but rather is made up of a large array of comparatively small and simple tasks all of which relate to each other. It's the relationships between all these little tasks that makes the work that each of us does unique, and which makes the business of trying to find software that actually fits the way we work such a bitch.

Even the desk accessory strategy didn't really solve this problem, because although they provide a set of readily accessible small tools, they don't allow you to develop all the little pathways and relationships between tools and data which are what your work really needs, and most of the interesting ones don't work with each other, or with the one application you use most of the time, or with whatever the latest release of the system software is.

It occurs to me that there's an echo of this human-like adaptability to be heard in the hardware world at the moment. The idea of the super-powerful, number-crunching central processor has been taken about as far as we think it can by the current generation of Cray supercomputers. The coming strategy, as adopted in the Connection Machine, is to use far simpler and less powerful processors, but connect scores of them in a network and let them all work together, each tackling relatively much simpler tasks. Well, perhaps I shouldn't push the analogy too hard.

Somebody said to me that the great thing about *HyperCard* is that it actually does all those things that people who don't know anything about computers assume they ought to be able to do. In other words, the reality is at last beginning to catch up with the fantasy. You remember the fantasy? That getting a computer would solve all your work and organisation problems? It was like the way that fairy tales used to end. The Prince, having given up fighting ogres, slaying dragons or just generally being a frog, has finally won his Princess. The story then ends with "they got married and lived happily ever after" as if there's some kind of causal relationship between these two utterly disparate occurrences.

I suspect that I am not alone in having been seduced by a romantic fantasy about the Macintosh. I can remember when we first met. Our eyes met across a crowded room. It was at the Infocom offices about 4 years ago, when I was working on the game of the *Hitchhiker's Guide to the Galaxy*. Dave Lebling had come into the room where I was working and said that there was something next door that I might like. Assuming that he meant what he usually meant, which was that he had found a new type of pizza, I went to have a look, and discovered instead a group of people crowded round a small beige coloured box that looked like a toy. (As it turned out there was a very good reason why it looked like a toy.) I watched, at first with mild curiosity, and then gradually I began to feel that kind of roaring, tingling, floating sensation which meant that I had

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Pathways and Relationships

had my first experience of *MacPaint*. But what I (and I think everybody else who bought the machine in the early days) fell in love with was not the machine itself, which was ridiculously slow and underpowered, but a romantic idea of the machine. And that romantic idea had to sustain me through the realities of actually working on the 128K Mac, then the 512K Mac and even (let's be honest, now that the Mac II is here) on the Mac Plus.

Well, just as I had finally resigned myself to being older and wiser, the fairy story has confounded all expectations by suddenly and unexpectedly turning into real life. I've had *HyperCard* on my Mac II for a month, and slowly all the old clichés are coming true. It has completely transformed my working life, by gradually adapting itself into a model of how I work, it's beginning to affect the way I think because I can connect anything anywhere with anything anywhere else, I can try out any idea that occurs to me and quickly find my way back to what I was doing (the program provides you with Ariadne's thread through the Labyrinth), and most astonishing of all it has actually physically transformed my office. For the first time in my life I know where everything is. Every letter, every old script, every odd piece of paper. I can find it in seconds. I can find pieces of paper I didn't even know I had.

The romantic idea that was inherent in the first Mac was that software should be designed not for computers, but for machines. *HyperCard* is the first time that that idea has suddenly and dramatically come to life. Well, that's that done. I now have a quick article to dash off for *Practical Fabric Fastening* magazine, and I think I know how it's going to start.

One day we will all blow ourselves up....

AS THE AUTHOR OF THE FOUR BOOKS OF THE HITCHHIKER'S GUIDE TO THE GALAXY TRILOGY, AND THE PERPETRATOR OF TWO INFOCOM TEXT ADVENTURES (HITCHHIKER'S AND BUREAUCRACY), DOUGLAS ADAMS NEEDS NO INTRODUCTION.

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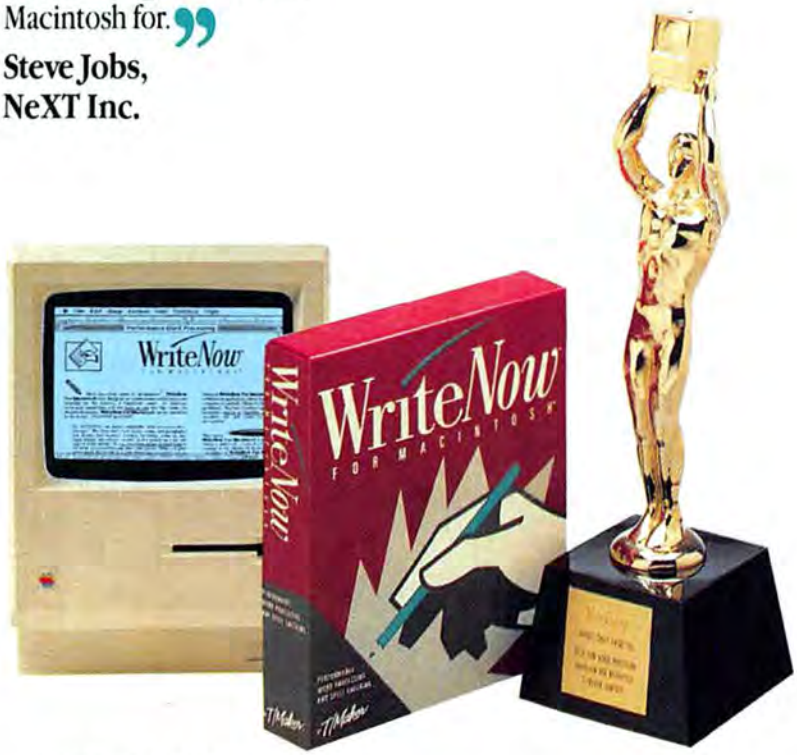
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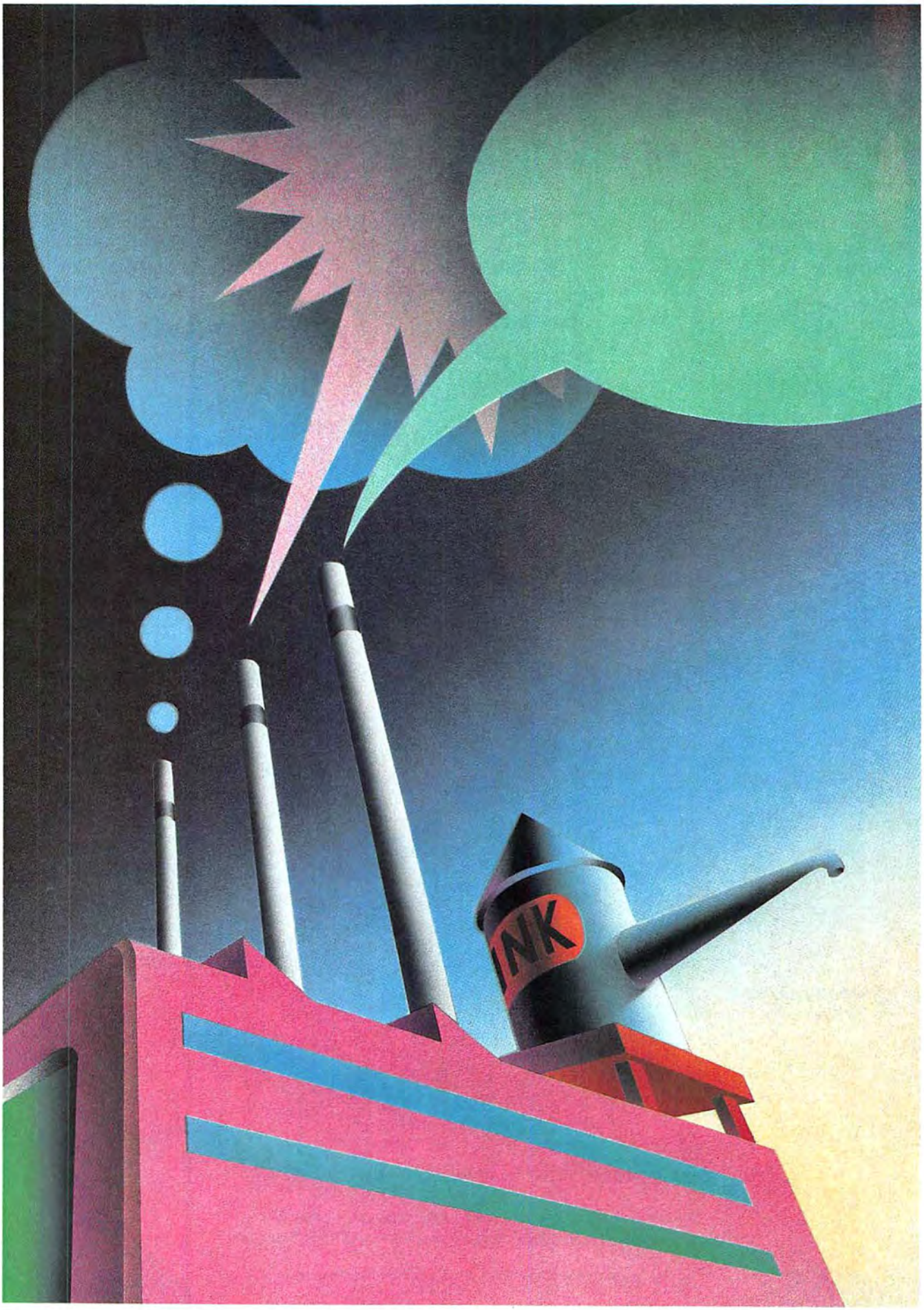
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JIM LUDTKE

Sitdown Comics

Comic Book Factory takes the pain out of — and puts the fun back into — challenging Trudeau and Breathed.

TO THE UNINITIATED, DRAWING A comic strip looks easy. You can make up all the rules as you go along. The characters can be anything. And they don't have to be anatomically correct. After all, who cares how many fingers Charlie Brown has? But, of course, that's only how it seems from afar. Get involved in producing one and very quickly the ugly truth surfaces: It's tough.

I like to think of a comic artist as a kind of production conglomerate. He or she must be director, photographer, stylist, set designer, art director, writer, and story editor (not to mention illustrator and colorist) all rolled into one. That it all springs from the mind and comes together on a drawing table only makes the process that much more remarkable. Oh, and I forgot one thing. Usually, they are required to be funny as well. There are no short cuts. That's why many are called but few are syndicated.

Still, if you have ever harbored dreams of becoming a cartoonist, *The Comic Strip Factory* from Foundation Publishing is sure to become one of your favorite programs. Of course, it won't turn you into a comic artist. But if you have a 512K (or larger) Mac, *The Comic Strip Factory* will make the production of comic strips more manageable than you believe possible.

NOT-SO-RAW MATERIALS

The Comic Strip Factory is not a paint- or draw-type program designed to create images from scratch. Rather, it's more like an assembly plant where all the various components of a comic strip are brought together.

The program comes on three unprotected 400K disks. The first contains the *Factory,* the *System* and the *PartMaker II* utility. The other two are data disks, containing four Backgrounds and six comic characters. Also included is a file of Props and another containing "Bubbles and Pointers."

Comic Strip Factory documents are assembled by combining "object" graphics. Characters and Props are essentially "painted" objects. Balloons are text objects. These are joined and stacked in front of Backgrounds, which may be either patterns or images. Every element in a comic page may be edited and the page itself can be altered at any time, resulting in an exceptionally flexible approach to graphic production.

MANUFACTURING COMICS

Creating comic strips with the *Factory* is easy. Document pages are divided into Panels. At the outset, the program asks you to select the basic configuration. Radio buttons on the layout dialog let you specify the number and arrangement of panels. Clicking OK creates the page.

Comic Strip Factory allows you to work on only one page at a time, but there's no limit on the number of Panels per page. Also, the initial layout is not absolute. You may alter it at any time during the creation of a strip. In fact, almost any conceivable panel shape can be made by using the Add Rectangle, Oval or Triangle commands. Panels can be returned

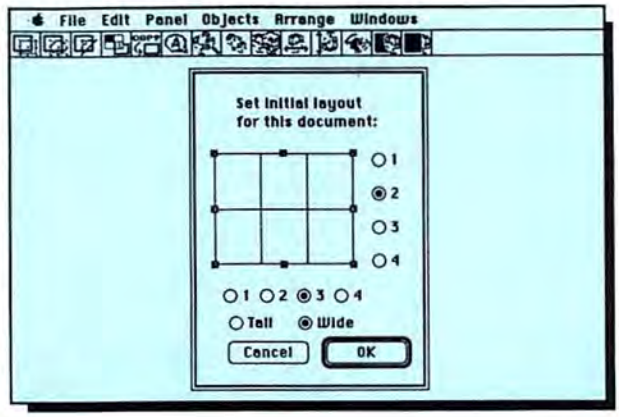
BY CARLOS DOMINGO MARTINEZ

to their original shape by selecting bordering Panels and choosing Add Rectangle. If you make serious mistakes, you can start over with the Remove Panel command. After removing the offending panel, you simply transfer a copy of a new panel from elsewhere in the window. As Panels are modified, the *Factory* recalculates their shape and maintains the proper borders between them.

Arrayed beneath the menu bar is a row of icons which duplicate many of the menu commands. Once you learn them, these icons really speed up the strip construction process. For most functions, you never have to return to the menu. Drastic commands, however, (such as Remove Panel) can be accessed only from the menu. And Cancel and OK buttons appear if the operation (such as Adding a Panel shape) will seriously affect your work — a nice safeguard.

Although the program can work on only one page at a time, it can keep up to four windows open. Besides the Comic window, where the strip being created resides, Background, text and Parts files can be left open in their own windows to facilitate cutting and pasting between files and the document. Unfortunately, only one window of each type may be open at any one time. Thus, to get graphics from different Parts files, you must close the first before accessing a second.

To expedite the transfer of components to the strip, *Comic Strip Fac-*



Before you can begin putting comics together, you must set up the assembly line. This is the initial layout for Hacker Follies, which was created to illustrate this article. The entire strip rambled over three separate pages.

Hacker Follies

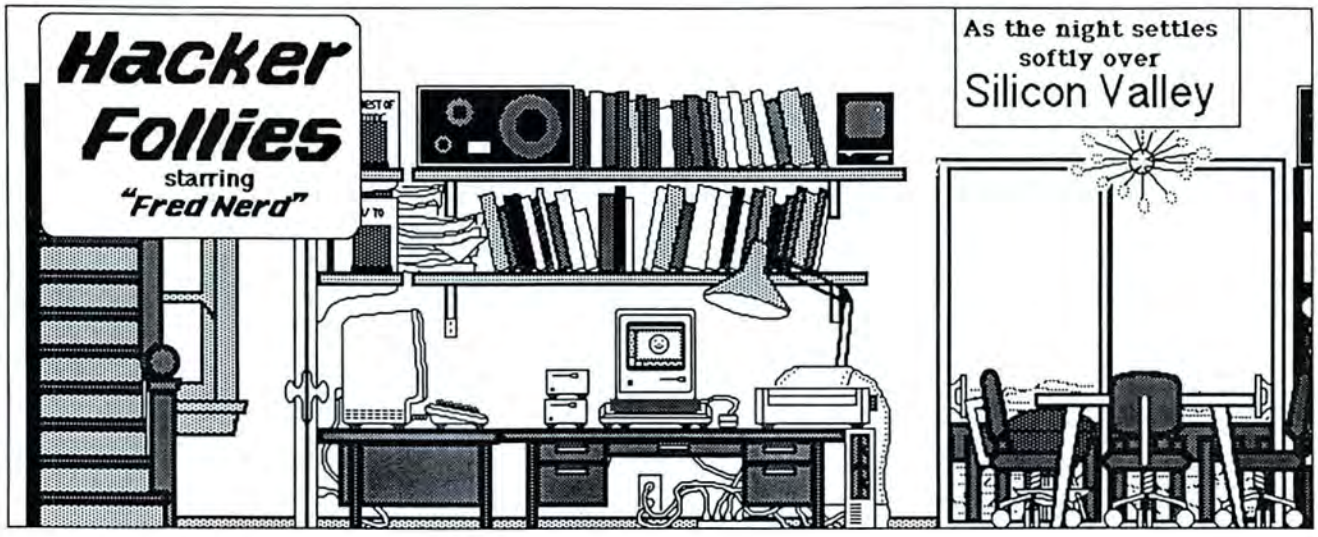
Even if you can't draw, *The Comic Strip Factory* gives you all the tools you need to make comic strips. Hacker Follies, my first stab at comic art, was done entirely using components included with the program. Here's how it was done.

The initial layout (two rows by three columns) was chosen pretty much at random. By the time I was finished the first three panels had been replaced by one, a large "scene-setting" introduction. Other panels had been contracted or divided as needed. The apartment (all from one Background file) and the Fred Nerd character are essentially "stock" items from the *Factory* parts bins.

The strip was done by trial and error. I visualized a scene in my head and tried different character parts until they looked right. When something didn't, I modified it. The "odor particles" emanating from Fred's sneakers (Panel 3), some extra sweat leaping from his brow (Panel 7 top), and the "speed" lines (Panel 8) were all added with EditBits. In Panel 9, Fred's hand was altered to typing mode and his sneaker modified to look as if it was behind the desk leg. In reality, the sneaker "object" sits in front of the desk, which is part of the background. The chair came from the Props file.

The story suggested itself from the "personality" of the character and the ambience of the scene. Text was added as I went along and was edited a few times, when I discovered typos or thought of better phrasing. As long as your strip is in *Comic Factory* format it may be altered and modified at your whim.

Originally the strip extended over three pages. When it was finished I saved each page as a *MacPaint* file and cut and pasted the panels into their final locations using *SuperPaint*.





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tory has a Copy To Panel command. This command, available from the Panel menu or from the icon bar, transfers Parts, text or Backgrounds to Panels in one click. Normal cutting and pasting functions work in standard Macintosh fashion when employed within the program.

SETTING THE SCENE

Backgrounds are *MacPaint*-compatible documents which may be opened in three different configurations: portrait (8 inches by 10 inches), wide screen (16 inches by 5 inches), and panorama (24 inches by 3.33 inches). Portrait is the standard *MacPaint* image configuration. For wide screen and panorama work, the *Factory* divides the image into two or three horizontal strips, respectively, and matches them end to end.

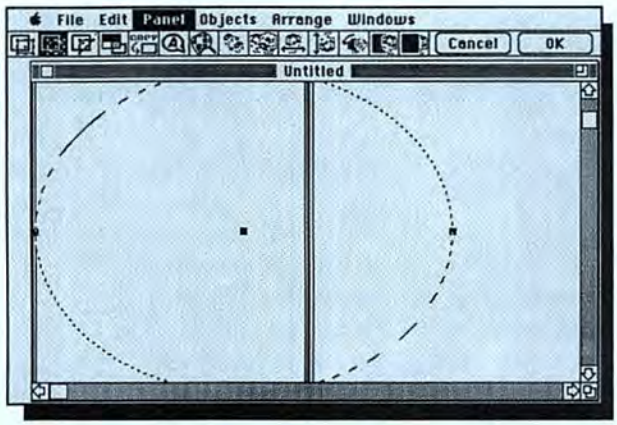
Install Background opens the image in a Background window. A portion of a Background can be designated by moving the selection marquee (which takes on the shape of the active Panel — a nice touch) over the image. Copy to Panel will transfer only that section of the chosen background to the panel. Since backgrounds are installed in their own layer at the rear of the panel, they may be added at any time in the process without disturbing the foreground composition. However, only one Background image can be associated with a document.

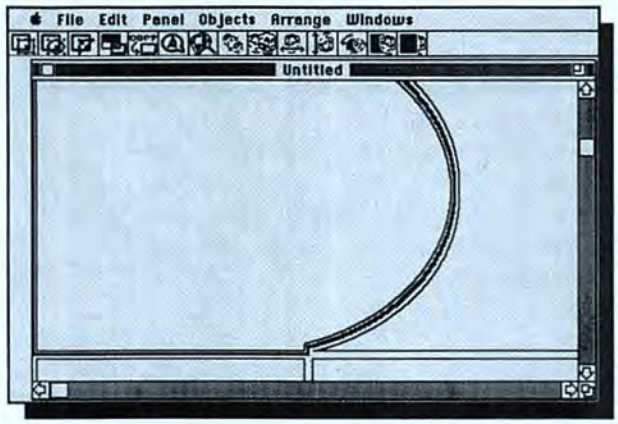
Besides the four samples that come with the program, any *MacPaint* image can be imported as a background. Unless they have been created specifically for use with the *Factory*, *MacPaint* images are best opened as portrait backgrounds. If you wish to create your own wide screen or panorama backgrounds, however, remember how the *Factory* slices and re-composes these images.

As a change of pace, or for graphic emphasis, patterns can be substituted for the background image in any panel. Patterns, chosen from a Pattern menu dialog, can be used as backgrounds on their own or can be used to lighten or darken a background image.

BALLOON GOING UP

Captions and dialog for your comic strips can be generated within the *Factory* or be imported as text files from your favorite word processor.



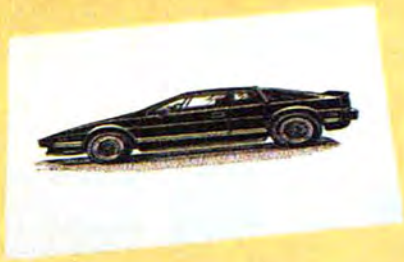


Panels can be altered at any time. Part A shows an oval being added over the initial Panels. Note the highlighted Add Oval icon at the top left. Part B shows the result. The panels have been reshaped and their borders recalculated. Virtually any panel shape is possible.



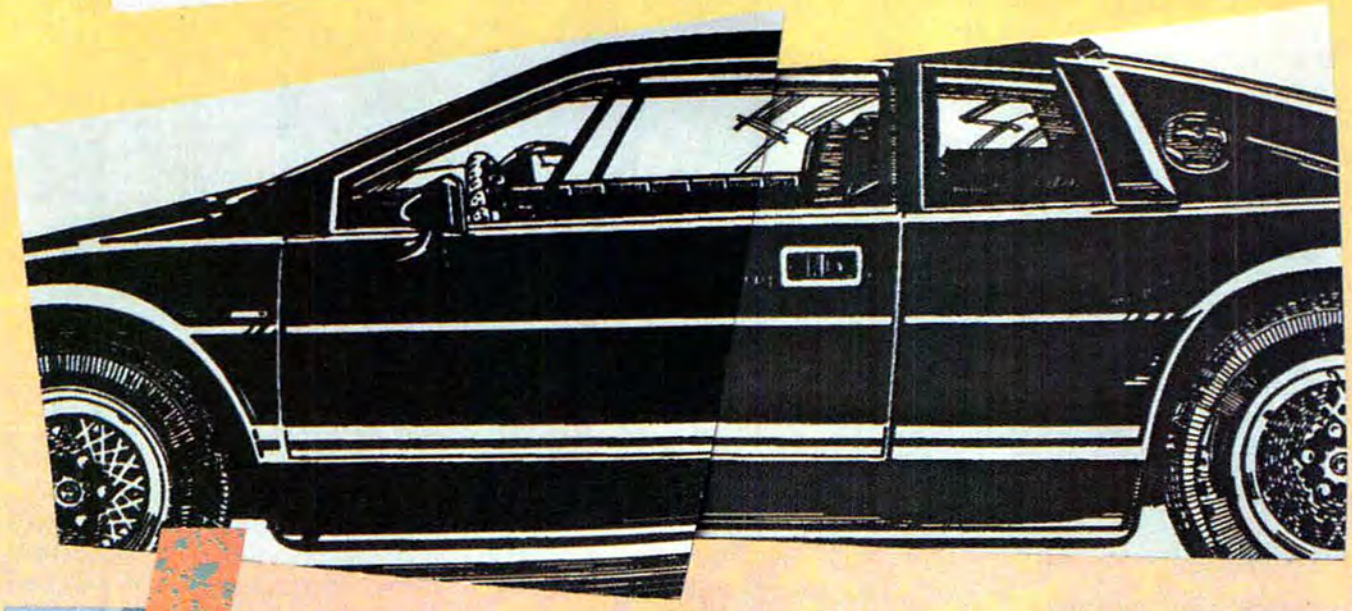






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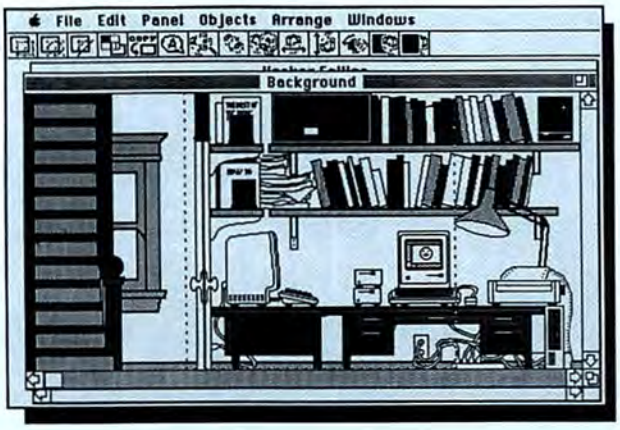
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In either case, editing is done in the program's Balloon Editor window. A size box adjusts the width of the scrollable text entry area. Control buttons set justification and the size and style of fonts. The Font menu includes five custom fonts with reduced leading that reproduce the look of comic lettering. These fonts also have special hidden characters which are invaluable for punctuation and emphasis. Seven types of balloons in three different weights (thickness) are possible. And, unlike other object text generators, the *Factory*'s Balloon Editor automatically sizes the balloon to enclose your text. Standard pointers may be added with the Point Balloon command. Curved pointers and thought bubbles are available from the Bubbles and Pointers file.



The background image used in Hacker Follies shown in the *Factory*'s Background window. The scroll bar at the bottom can be used to move around the entire apartment scene, which has been opened in panorama form. The dotted line shows the selection marquee for the currently active panel. Clicking the Copy icon would transfer the selected section of the image to the panel.

DISMEMBERED CREATURES

Comic Strip Factory characters are stored in Parts form. This is both a proprietary file format and a description of the state of the images. Opening a Parts file reveals an assortment of heads, torsos, hands, and so on. Characters are created by choosing the appropriate components and joining them.

Clicking on a part selects it and Copy To Panel transfers it. Once on the panel, it may be dragged into place and combined with other parts. If you don't like it, CLEAR and replace it. Or COPY several parts at once and try them on for size.

Putting parts in their proper place requires only common sense and the judicious application of the Arrange and Object commands. Parts can be inverted, flipped vertically or horizontally and rotated in 90 degree increments. If you need more than one, it can be duplicated on the spot. Parts can also be grouped or ungrouped as necessary and may extend beyond the boundary of the panel. Bring To Front and Send To Back places them in order.

Props, inanimate objects as opposed to a character's limbs, are managed by the *Factory* exactly the same as Parts.

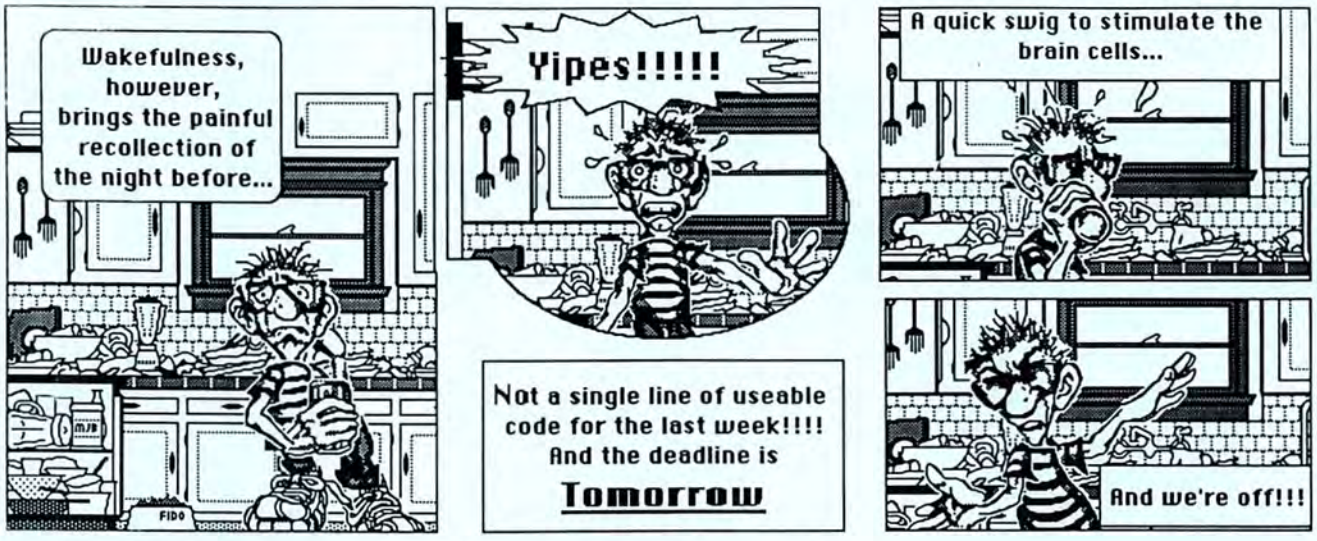
EDITBITS

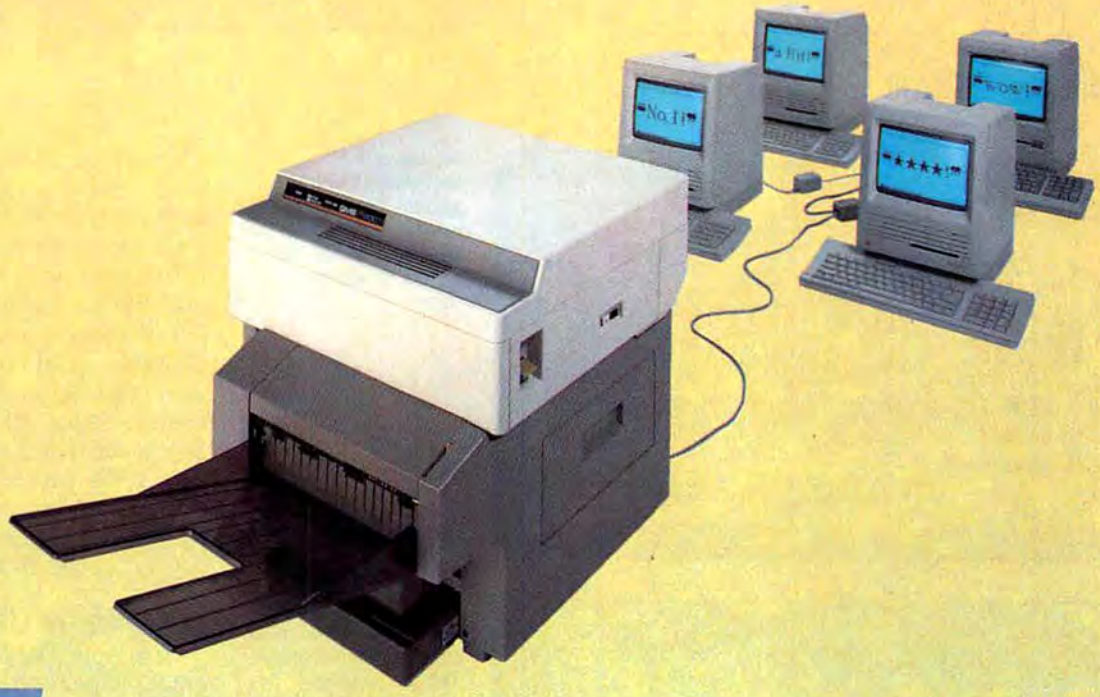
Both parts and props can be modified with *Comic Strip Factory*'s EditBits feature. Similar to FatBits, this view magnifies a part to the pixel level. Pencil, paintbrush, eraser, and handgrab tools are available here. And you can check your progress on a regular size image at the top left.

EditBits, however, works on two planes. You can edit both the object itself, and its background mask (the plane behind the image that makes it look solid). Radio buttons below the Tools let you switch from one plane to the other. Only white pixels, representing the mask, can be painted on the gray background. Black pixels can only be painted over white. However, the white pixels (mask) inside an object (part or prop) can be changed to gray, rendering the object transparent. Thus, EditBits can produce three-dimensional effects impossible with other image magnification schemes.

PARTMAKER II: THE RESCUE

One of the major benefits of the *Comic Strip Factory* approach is the ability to manipulate character parts





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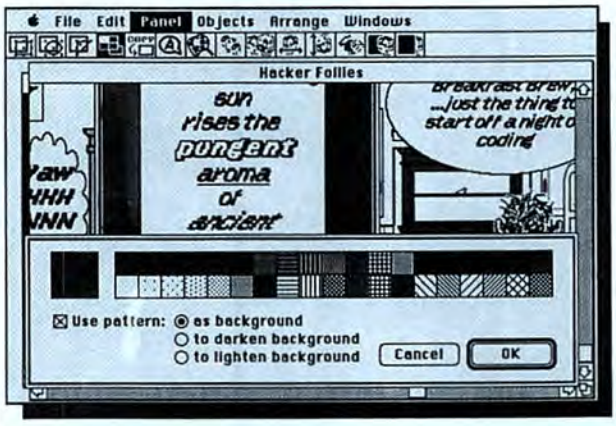
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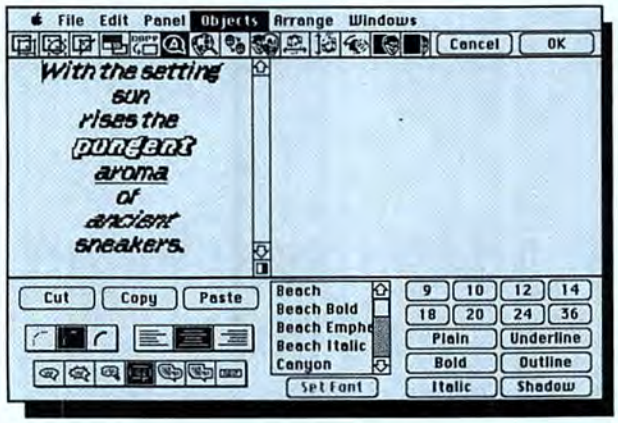
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You can also fill backgrounds with patterns from this palette. The panel behind the palette shows the pattern background in place.



Comic Factory text is entered and edited in the Balloon Editor window. The control panel approach keeps all your options handy. The icons at bottom left show the settings used for this balloon in Hacker Follies.

individually, mixing and matching them as necessary. However, if you already have a library of whole characters, this might seem like a drawback. *PartMaker II,* a standalone utility included on the *Factory* disk, solves this problem.

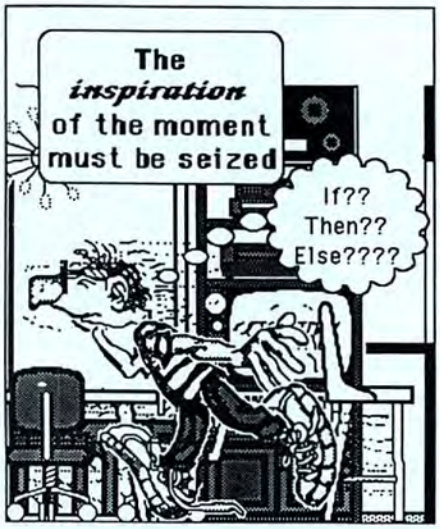
PartMaker II (version 2.0) converts any *MacPaint*-type image into Parts format by evaluating the relationship of white and black pixels. The program looks for the white space surrounding the graphic and considers the enclosed area a distinct part. So any graphic with a solid border will become a part in its entirety. It compensates for fine details by checking for black pixels that are separated by only one white pixel. These are considered part of the same image and are merged. But if two or more white pixels come between dark dots, *PartMaker II* divides the areas into different parts.

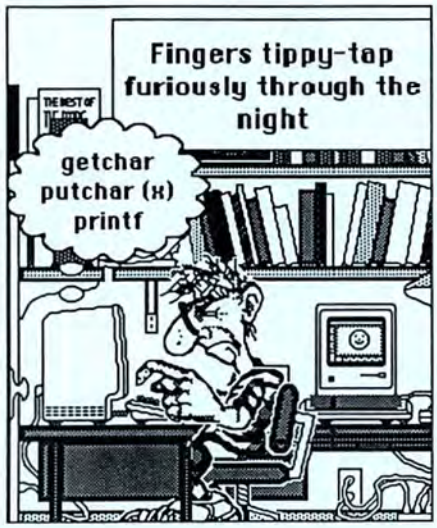
In operation, *PartMaker II* displays the file being converted on the left of the screen and reproduces its contents on the right as the conversion takes place. A status area in the center tells you which part of the process is occurring and a thermometer shows the progress of the conversion, so you always know what's happening. Other file conversion utilities should be so kind.

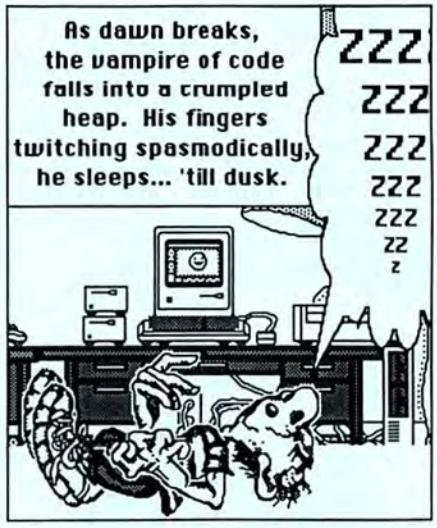
STRIPPING THE LIGHT FANTASTIC

Although *The Comic Strip Factory* comes with enough material for anyone to assemble their own strips (see sidebar), real artists, comic or otherwise, will naturally want to work with their own images. Creating graphics to use with the *Factory* is a job for a dedicated Paint application. Any program that can save documents in *MacPaint* format (*SuperPaint, Comic/GraphicWorks, FullPaint,* etc.) is a suitable development platform.

MacPaint images can be imported directly as backgrounds. If you wish to use them as parts, however, you must either convert them with *PartMaker II* or copy them in with the *Factory*'s new (version 1.5) Smart Paste feature. Smart Paste integrates functions of *PartMaker II,* allowing you to bring in graphics from other programs as objects. If the Clipboard or Scrapbook contains fewer than 32







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objects, Smart Paste tries to paste them separately. As with *PartMaker II*, neighboring objects are merged. But, if more than 32 objects are present, they are pasted as one. When used with the Option key depressed, paste always treats the contents of the Clipboard as one object. And when used with the Shift key, Smart Paste "works harder" to make separate objects by attempting to merge some and circumvent the 32 object limit. When used within the *Factory* itself, the Shift-Paste option, in conjunction with the EditBits feature, is also useful for splitting parts in two.

The Factory can save files as MacPaint documents as well as in its own format.

SmartPaste is enhanced by another version 1.5 improvement: the Transfer command. With Transfer you can place the *Factory* on "hold," open another application, Cut a graphic, and then Smart Paste it into your strip.

The *Factory* can save files as *MacPaint* documents as well as in its own format. That makes completed strips transferable to other applications. Parts files can be exported with *PartConvert*, a utility which will transform a Parts file into a Paint document. This program, not included with the *Factory*, comes with the *Office Days* characters, discussed below.

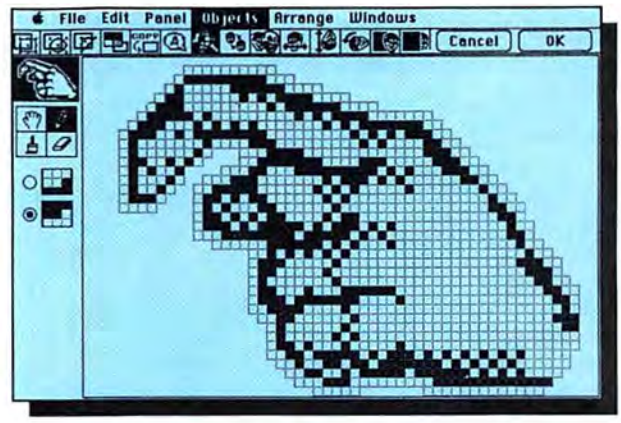
Printing your comics is equally quick and simple. The *Factory* begins immediately and drives the ImageWriter at what seems a faster than normal pace. No LaserWriter driver is provided. But laser output of strips saved in *MacPaint*-format is possible from other programs.

COMIC PEOPLE

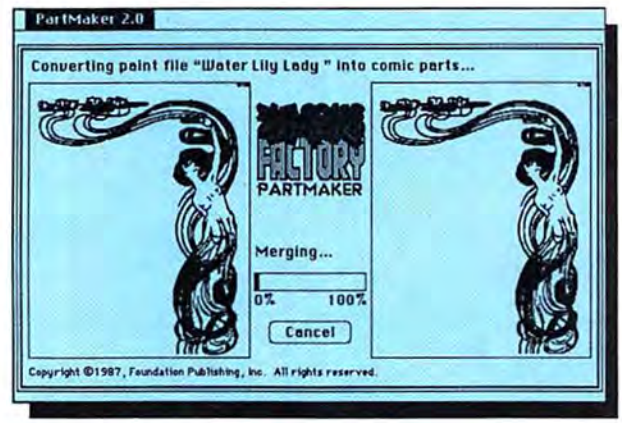
For many of us, the act of creation necessary to produce characters is beyond our ability. To assist non-art-



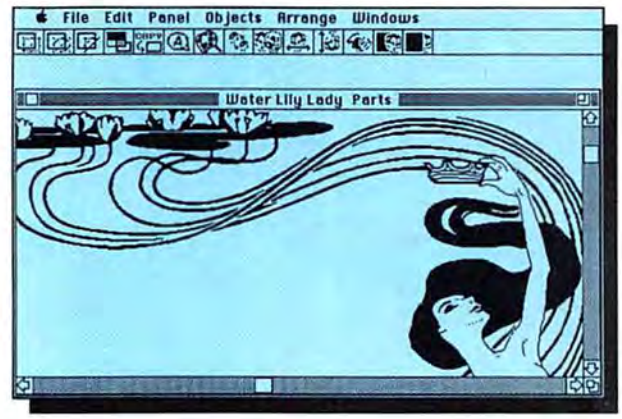
One of the two Part files that hold the parts Fred Nerd was created from. Part files are filled with character pieces. If you look carefully, you'll find some of the faces used in Hacker Follies.



This Fred Nerd hand was modified with EditBits for use in the next to last panel of Hacker Follies. Originally Fred's index finger pointed straight out. EditBits works on two planes, both the object image (black pixels) and its background mask (white pixels) can be modified.



PartMaker II at work is shown in Part A. The image is from a MacMemories clip art disk. Part B shows the image transformed into a part. In this case, *PartMaker II* merged the entire graphic into a single part.



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ists, Foundation Publishing is also developing disks of characters. The first volume, a two-disk set called *Office Days,* contains an office background, a file of office props and seven new comic performers ready to be used with the *Factory.* When transformed with the *PartConvert* utility, these characters can also be used with any graphics program that reads *MacPaint* files.

Although the characters in *Office Days* — as well as the original six characters in the *Factory* — are copyrighted by their creators, you can use them in your own publications. Foundation Publishing grants a license for their use to all legitimate owners of the software. However, you must remember to include the proper copyright notice.

NO MANUAL LABOR

Comic Strip Factory comes with a manual that is both informative and entertaining. It leads off with a short tutorial and follows up with a reference section. A glossary, a bibliography, an index, and update sheets (for version 1.5 of the *Factory* and 2.0 of *PartMaker*) complete the package.

Comic strips created with the *Factory* are used to illustrate the operation of the program and to demonstrate how the character parts should go together. Beyond simply explaining the program, the manual also attempts to elucidate some of the finer points of comic design. That's not an easy task in a mere 72 pages, but the result is a good introduction.

By the way, the authors of this manual (and the designers of the *Factory*) were once part of the nucleus of *Softalk Magazine,* a now defunct but much lamented journal. Reading this manual reminded me of how much I used to enjoy *Softalk.* It is cleverly written; it made me laugh.

IMPROVING THE FANTASY

Comic Strip Factory does its job of assembling comics very well. So what needs improvement?

The most important missing element is the ability to move completed panels within the *Factory* itself. You can't drag them about and you can't cut and paste them in new locations, even within the same page. When I needed to cut panels from one page and paste them in another, I had to transfer each page to a Paint-type application to do it.

Another improvement would be color. I don't have a Mac II (yet) but I'm sure those who do would love to see their characters in color on the screen. In any case, the ability to assign color for ImageWriter output would be welcomed by the rest of us.

And a zoom capability would be nice, too. I don't mean down to the pixel level, just the ability to enlarge a part two or three times. Currently the only way to simulate a "close-up" is to tighten the panel around the character.

NOT FOR COMICS ONLY

Although designed with cartooning in mind, *The Comic Strip Factory* is not limited to comics. Its seamless integration of text and graphics and assembly line approach to document creation are sure to make it valuable in a wide variety of design and production contexts. Advertising storyboarding (of course) comes instantly to mind. But I'm certain imaginative Mac users will think of many other, perhaps unconventional, applications.

The Comic Strip Factory is an excellent program. It is logical in construction, simple to master, effortless to use, and stable in operation — a powerful graphics tool.

Comic Value

Testing a program's features is one thing. The actual crunch comes when you ask it to do real work. Does everything add up? Do the features enhance or detract from the usability of the product? Is it a coherent tool you can work with day after day?

As a writer, I'm often called upon to evaluate and sometimes to compose documentation. So I confess to a certain unhealthy interest in software manuals. I tend to look at them before I boot up a program. However, this was not the case with the *Factory.* I plunged right in, making mistakes as I went along.

In spite of myself, I created the Hacker Follies strip adorning this review after only a few hours of tinkering with the program. Considering that I had never done a comic strip in my life, I was, needless to say, quite impressed with *The Comic Strip Factory.*

After that initial bout of creativity, I put the program through all the usual paces. During that time, and while writing this article, I returned often to the strip, fine-tuning its elements. The ease with which you can edit *Factory* documents without fear of damaging what you've already produced, impressed me as well.

The Comic Strip Factory has been criticized because it lacks the tools for graphics creation. But that's not its purpose. The *Factory* is intended to simplify the *assembly* of relatively complex graphic constructions.

For the artist, it is a reasonably easy job to create parts in a Paint-type application. Non-artists can use the ready-made characters and backgrounds, or bring in clip art. Because it doesn't burden you with a lot of excess baggage, *The Comic Strip Factory* is a program which anyone, artist or not, can use intuitively.

Since it's well conceived, logically organized and solidly constructed, you can produce useful graphics even before really learning the program. To my mind, *The Comic Strip Factory* stands up to the "usability" test very well.

CARLOS DOMINGO MARTINEZ IS A REGULAR CONTRIBUTOR TO *MACUSER.* DOING THIS ARTICLE ONLY DEEPENED HIS ADMIRATION FOR *DOONESBURY* AND *BLOOM COUNTY.*

MACUSER RATING

The Comic Strip Factory ★★★★½

Follows Mac Interface	■ ■ ■ ■ ■
Documentation	■ ■ ■ ■ ◧
On-Screen Help	None
Performance	■ ■ ■ ■ ■
Support	■ ■ ■ ■ ◧
Consumer Value	■ ■ ■ ■ ■

Comment: A terrific graphics tool, not just for comics. **Best Feature:** Seamless integration of text and graphics, ease of composition. **Worst Feature:** Inability to move entire panels around on the page. **List Price:** $89.95. Published by Foundation Publishing, Inc., 10301 Yellow Circle Drive, Minneapolis, MN 55343. (612) 935-4230. Version 1.5 reviewed, version 1.6 was released just as we went to press. Not copy protected.

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Multitracking MIDI Master

Master Tracks Pro: the cleanest, clearest, most comprehensive and easiest to use MIDI sequencer yet.

THE EFFECT OF MIDI SEQUENCERS ON the way music is produced today is as profound as that of any technological development since the development of the multitrack tape recorder. Sequencers give the music production industry a degree of precision and consistency previously unattainable, and have given musicians, both amateurs and professionals, access to sounds and complex musical textures previously far beyond their economic means.

The Macintosh is an extremely popular machine among musicians, which is right and proper, since in many ways MIDI and the Mac were made for each other. The best music software uses visual devices to show MIDI data (such as bars of varying length to indicate individual notes); offers mouse-definable regional editing and cut-and-paste functions; and provides a high degree of visual and tactile feedback to the user.

Macintosh MIDI sequencers have been around for about 2 years, but many of the first units were excessively buggy. And their manufacturers, rather than fixing the bugs, spent their time implementing new features, which inevitably gave rise to more bugs. Some were more solid than others, but lacked important features, such as precise event editing or a good graphics-based user interface.

This year has seen the introduction of several new sequencing programs, both from established players and new ones. *Master Tracks Pro* is Passport Designs' first entry into the Macintosh market, but the company is actually one of the oldest in the MIDI business. Their credits include the development of the Soundchaser synthesizer system for the Apple II in the late 1970s, and the first MIDI software for any computer, *MIDI-4* for the Apple II, in 1983.

Before they got involved with the Mac, Passport did their homework—a lot of it and well. In many ways, *Master Tracks Pro* is an amalgam of the best features of earlier programs, such as *Performer, Total Music,* and *Megatracks.* It's not just the combining that works, it's the way *Master Tracks Pro* combines those features to come up with more than the sum of its parts. Plus it adds a number of exciting new features all its own. It is a uniquely Mac-like program—although Passport makes programs called *Master Tracks* for several other computers, the Mac version bears scant resemblance to any of them.

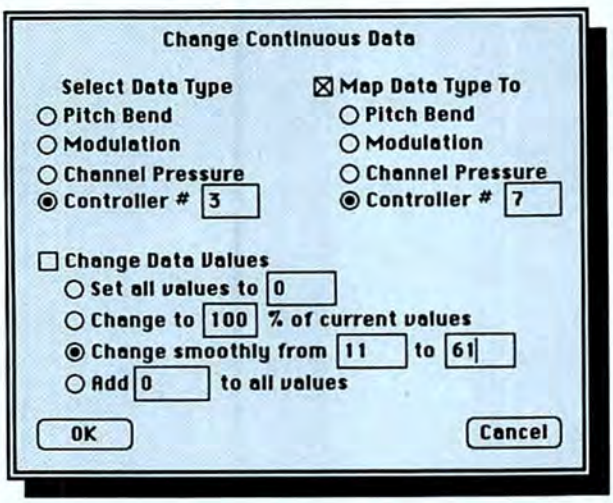
FIRST APPEARANCES

Master Tracks Pro is a 64-track tape recorder-style sequencer. A Transport window contains controls

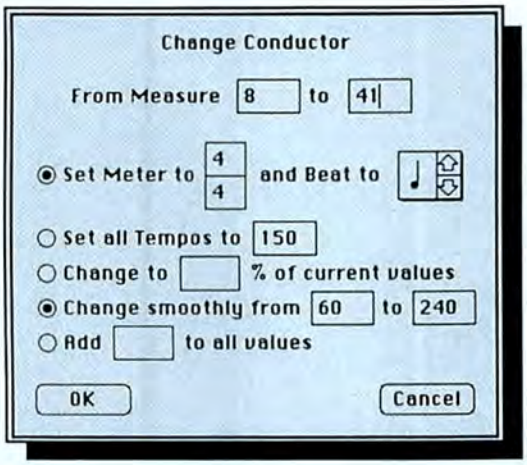
BY PAUL D. LEHRMAN



JENNY ADAMS



This is where you make regional changes to continuous controller data. You can add a fixed value, scale by a percentage, change smoothly over time, or map from one controller to another.



This is the place where you modify the Conductor track to change the tempo. Here you can set tempo and meter, add a fixed value or scale by a percentage, or change smoothly from one tempo to another.

for Record, Play, Pause, Fast Forward, and Rewind, as well as a counter that shows the current starting position in terms of measures, beats, and "clocks"—1/240ths of a beat—which gives the program one of the highest resolution factors among MIDI sequencers.

Each track can consist of notes, controllers, patch changes, or any combination thereof. Keeping track of the tracks is the job of the Sequencer window, where each track can be enabled or disabled for playing, recording, looping, or soloing. You can record only one track at a time, but you can solo as many as you wish. Each track can also be given a name, a MIDI channel, and an initial program change, which is sent only when a sequence is played from the beginning.

If no MIDI channel is assigned to a track, then the data on that track will play on the channel on which it was recorded. Incoming MIDI data is not automatically assigned a channel number; consequently, a track can contain MIDI data on multiple channels. In fact, every single event on a track can conceivably be assigned its own MIDI channel. This feature could cause tremendous confusion, but you don't *have* to use it (although it does have some major advantages, which we'll get to in a bit).

Once data is recorded, it can be viewed and edited in a variety of ways, using nearly a dozen different windows. The two that are most used are the Song Editor and Step Editor. In the Song Editor window, you can see as many tracks as will fit on the screen. Each track is shown as a horizontal succession of rectangular boxes, each of which represents one measure. A box is black if the measure has data in it and white if it doesn't.

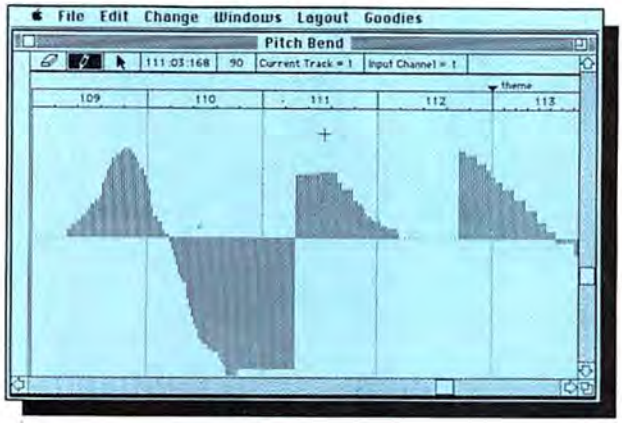
The Step Editor window gives you a much closer look. You only see one track at a time, with notes shown as horizontal lines whose length corresponds to their durations. The window has six levels of horizontal resolution, or Zoom. An illustration of a piano keyboard at the left of the screen helps to show what the notes are, and a full-screen grid can be called up to assist further.

You're not restricted to working in a single window while playing a sequence, but can switch among windows freely. The computer always gives the music top priority—in particularly complex areas, the screen may take a few seconds to get itself together.

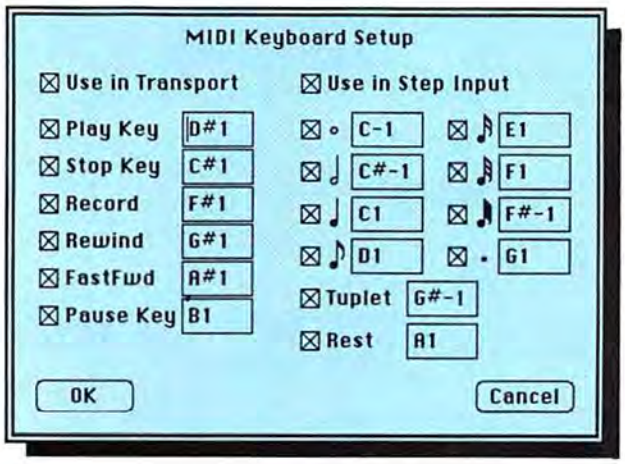
EDITING

In either the Song or Step windows, regions of data can be selected with the mouse for editing. In the Song Editor you can choose one or several measures over one or more contiguous tracks, but you are limited to measure boundaries when making a selection. In the Step Editor, on the other hand, the boundaries of the selected region can be on any clock pulse, but you can only work on one track at a time. You can, however, cut from one track and paste to another.

Once you've selected a region to edit, there's an impressive number of operations to choose from. You can take any data within the region (like key velocity, controller value, or duration) and set it to a particular value, add a constant value to it, or scale it by a percentage. You can also effect a smooth change over the selected period of time from one value to another, for making velocity-based crescendos and diminuendos or smoothing out controller or pitch-bend motions. You can also "map" controllers to controllers. For example, all aftertouch information in a region can be converted into pitch-bend data. Notes can be lined up on beats, or "quantized." The resolution of the quantization can be expressed as a musical note (from a dotted whole note down to a 64th note), as a number of clocks, or as a "tuplet," such as 5/7ths of a beat. At the same time they can be offset a



Changing the screen resolution lets you control the data density. Tracing over this figure, using the mouse, would "fill in" the gaps, doubling the density.



The MIDI Keyboard Setup window lets you assign MIDI keys to the transport and step-time functions.

certain number of clocks before or after the beat, to compensate for long attack times on certain synthesizer voices or to "drag" a drum track. There is also an interesting feature that compensates for consistently early or late playing. It lets you specify that notes up to, say, 65 percent late are quantized to the previous beat, while only those more than 65 percent late are quantized to the following beat.

The Humanize function is the opposite of Quantize, except that it acts on durations and velocities as well as start times. It can also apply a degree of randomness to the data. If, for example, you choose Randomize Start Times and specify 20 clocks, each note within the selected region will be moved backward or forward from 0 to 20 clocks.

Another very useful function lets you strip data from a track, cutting or copying it. You can specify a type and range of data to be affected, like a range of notes, a type of controller, or a channel number, or any combination. This is good for orchestrating keyboard performances, where the melody line on the upper part of the keyboard can be stripped and pasted to one track, while the accompaniment below goes to a different one. It's also a godsend for users of MIDI guitar controllers, on which each string addresses a different channel, since it allows a track to be split easily into separate tracks after it's recorded.

Other functions include Channel, which allows selected data to be sent to a specific MIDI channel; and Transpose, which has a nice, undocumented touch: Instead of typing in the name of the note defining the transposing interval, you can simply play it from the master keyboard.

Master Tracks Pro has a very clever way of handling tempo changes. A Conductor track accompanies every sequence, determining the tempo at each beat and the time signature for each measure. The Change Conductor function lets you specify a time signature and tempo for one or more measures; change smoothly from one tempo to another over the length of a region; or alter the existing tempo(s) either by a constant value or a percentage. The Conductor track is invisible, except that as the sequence plays, any tempo or meter changes are shown in a special Conductor window. (This window has a scroll bar for adjusting tempo while the sequence plays, but any adjustments made are temporary, and do not get recorded into the Conductor track.)

You can also change tempos with the Fit Time feature. This feature, invaluable for scoring to pictures, tells you how long, to the nearest tenth of a second, a selected region takes to play, and lets you specify a new length for it. When you do so, all tempos within the region are re-calculated accordingly, so that all of them—even the accelerandos and ritardandos—maintain the same relationship to each other.

GETTING DOWN TO IT

The wealth of regional editing functions does not mean that the designers of *Master Tracks Pro* have neglected individual event editing. In the Step Editor window, double-clicking on a note opens a box with the note's start time, pitch, duration, channel, and key-on and key-off velocities. You change a parameter by selecting it, then clicking on up and down arrows or typing in a new value. (If you try to type in an illegal value, such as a Start Time beat of 5 in a 4/4 measure, the program beeps at you.)

You can paint notes directly in the window with the mouse by first choosing durations from a palette and then typing in velocity values. Numerical time and pitch indicators help keep track of the mouse's position, so that inserting a note is fast and accurate. Notes can be dragged around, or they can be moved with restrictions—keeping either the pitch or the start time constant—by holding the Shift key and dragging.

The Step Editor window is also used for step-time entry of MIDI data—a technique that makes technical wizards out of the weakest keyboard players. *Master Tracks Pro*'s implementation of step-time is very

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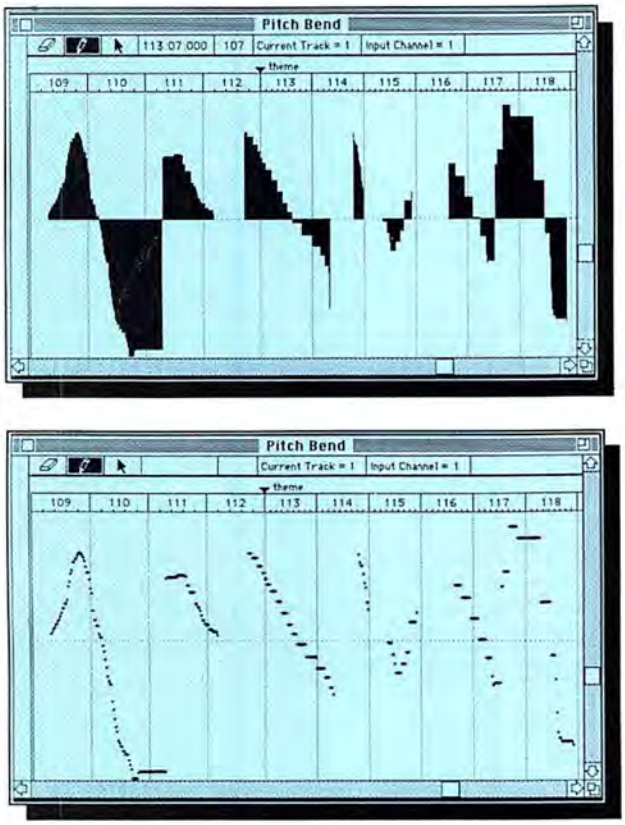
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Pitchbend editing in skyline (top) and cross (bottom) modes.

well done. First, you click on a starting point, then choose both a duration, and an "articulation" parameter from 0 to 100. Articulation specifies what percentage of the time between successive notes is filled by the note itself. Low percentages result in staccato passages and high percentages produce legato. Then you play the notes on the master keyboard. Rests are entered with the Return key. As each note is played, it appears on the screen, and as measure boundaries are crossed, the screen follows accordingly. You can change the duration and articulation parameters at any time. To make the operation even faster, several of the keys on the master MIDI keyboard can be used to specify durations, so you don't have to keep going back to the Mac to make changes.

EDITING DATA BESIDES NOTES

While regional and note editing are excellent, *Master Tracks Pro* truly stands out when editing *non*-note MIDI events. There are separate windows (which, like the Step Editor, show one track at a time and are Zoomable) for pitchbend, keyboard aftertouch, individual key aftertouch (a rarely used parameter), modulation wheel, program change, and other controllers. Events are shown either as vertical lines in a "skyline" mode, or as little crosses. Single events or "sweeps" can be entered or erased with the mouse, while time and value indicators show the mouse's position. There is a new generation of MIDI-based studio equipment, such as mixers, digital delays, reverbs, etc., that use controller and other non-note data to automate their operation. *Master Tracks Pro*'s graphic controller editing makes it the first program that can be used efficiently with such gear.

Another useful feature is that the *density* of the data, that is, how many MIDI events will actually be generated per unit of time, can be determined. This is very important when multiple controllers or tracks of pitchbend are being used, since overly dense controller data will clog up the MIDI data stream. When that happens the music slows down or gets out of sync with itself. In this program, the data density is actually a function of the screen resolution: If you paint in a pitchbend or controller sweep on a maximum resolution screen, it will generate an event for every clock pulse, or 240 events per beat. However, if you paint on a very low resolution screen, an event will happen only once every 24 clock pulses, or ten times per beat. You can also take advantage of this feature with data recorded from a live source, which can be "thinned" by tracing over it with the mouse on a low-resolution screen.

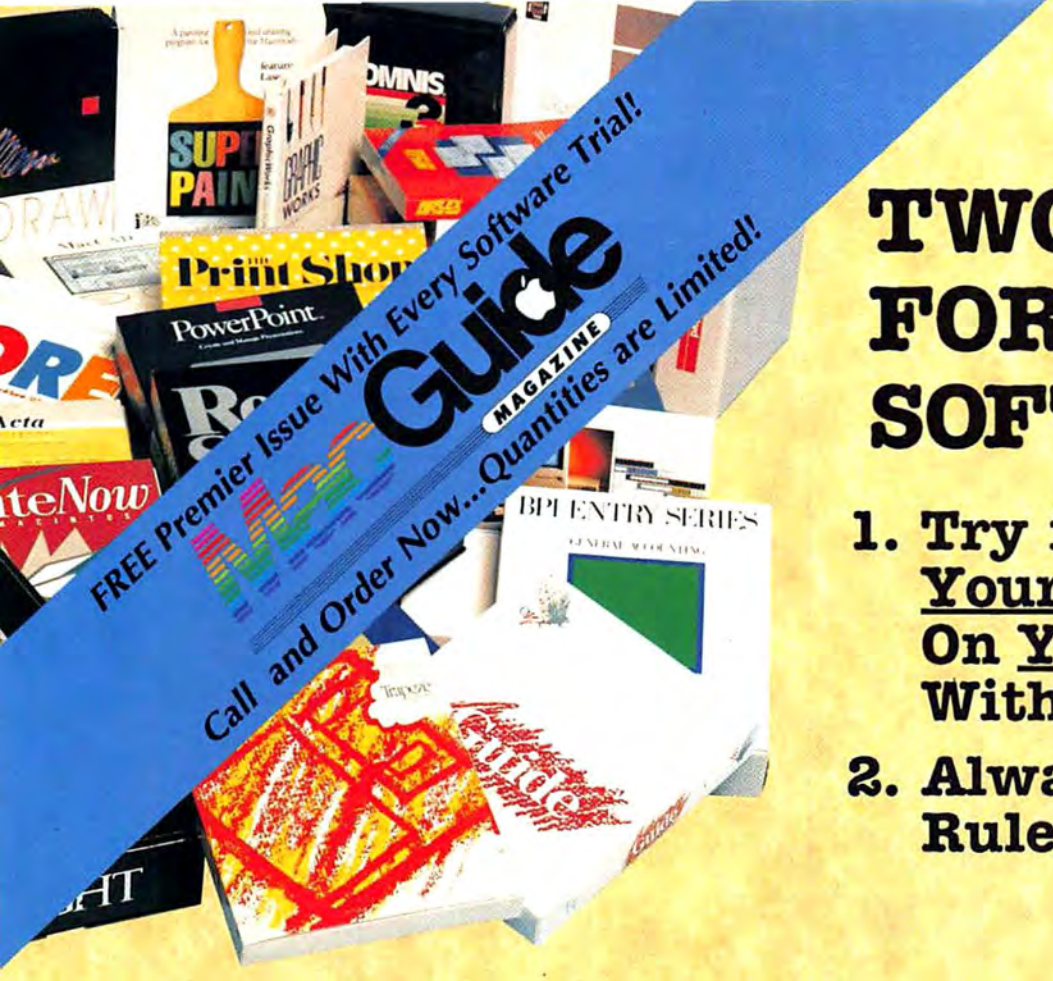
OTHER FEATURES

The program recognizes MIDI clocks and song pointers, so it can be used with external synchronization devices such as SMPTE-to-MIDI convertors. It also generates MIDI clocks whenever it's running, so you can sync a drum machine to it. This puts extra data into the MIDI stream which is not always needed, so it would be nice if you could turn this feature off.

The program reads and writes "MIDI Files," the emerging *de facto* standard for Mac-based (and hopefully other) music programs, so it exchanges information with programs like *M* and *Jam Factory,* reviewed in *MacUser,* October '87, as well as some other sequencers. There's also a Sysex function that lets you send bulk system-exclusive data from one or more MIDI devices (like a bank of synthesizer patches) to a file on disk, and send it back out again without having to boot up a "librarian" program.

The Record Filter feature lets you ignore controllers, notes, pitchbends, or any other MIDI data while you are recording tracks, and also quantize notes or assign them to a particular channel as you record them. When you choose SHOW CLIPBOARD, the program tells you the origin of the data on the Clipboard in terms of track(s) and start and end times—a nice touch.

Set up any number of "markers" you desire, each with its own name, to delineate verses, choruses, or whatever. Markers show up in the song and step editor windows, and you can instantaneously set the current position of the counter to the next marker with the Tab key, or go



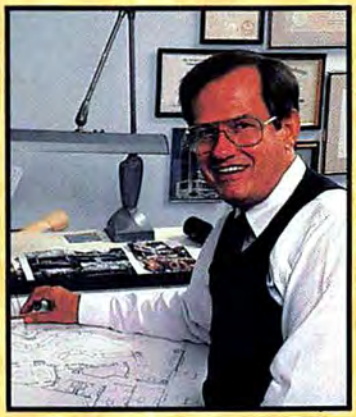
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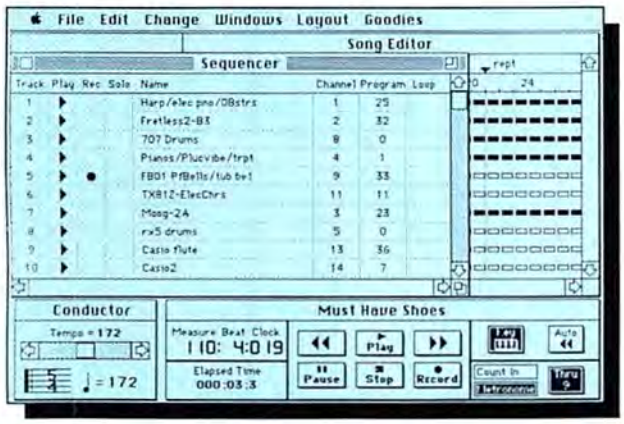
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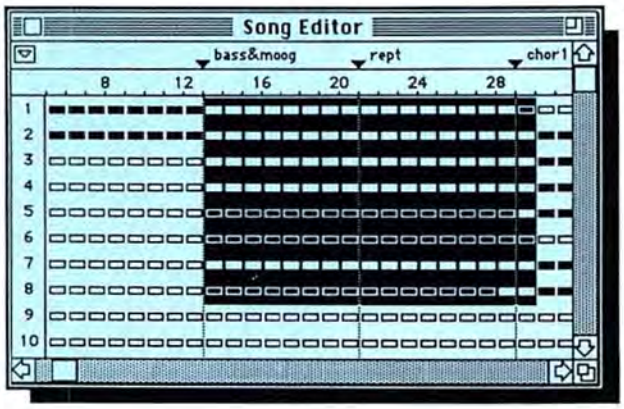
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Multitracking MIDI Master



The basic *Master Tracks Pro* work areas are the sequencer, conductor, and transport windows.



The Song Editor window with markers in place is shown here.

backwards with Shift-Tab. Keys on the MIDI keyboard can be assigned to operate the functions in the transport window, much like the way they are used for step-time entry control.

Unlike some other Macintosh sequencers, all of *Master Tracks Pro*'s windows are movable and have resize boxes and scroll bars. When you find an arrangement of windows you like, save it as a Preference and it will appear the next time you open a file or boot up.

IS IT FOR YOU?

All of these features can give the impression that *Master Tracks Pro* is a program meant only for MIDI experts. That's not so. In fact, *Master Tracks Pro* is the easiest sequencing program to get going on that I've ever seen. Much of that is because it adheres far more closely than any of its predecessors to the Mac interface. Although some of the more advanced functions require a little time to get to know, the basic operation of the program should make perfect sense to even the rankest beginner right away.

Bugs seem to be non-existent in the version being shipped at press time (1.10), and even in the three previous versions I used (including a beta) they were rare and relatively minor. A friend of mine with long and painful experience with Mac sequencers called me up the day after he purchased *Master Tracks Pro* and said, "Something's wrong! I tell it to do something, and it just *does* it!"

Passport's support has so far been excellent, and they have been very open to user suggestions in their updates. No matter what version you buy, you'll receive a backup disk with the latest version (the program is copy-protected, and hard-disk installable) when you send in your warranty card. Further upgrades are $35 each.

The manual is relatively brief—Mac sequencer manuals tend to resemble epic novels usually—but it is reasonably thorough. It doesn't explain some of the program's more esoteric techniques (like the controller-thinning trick), and it has a number of subtle mistakes and omissions. For example, it says that you can select a *region* to paste information into, but you can't. Paste only works if you've selected a *single point* at which to start it.

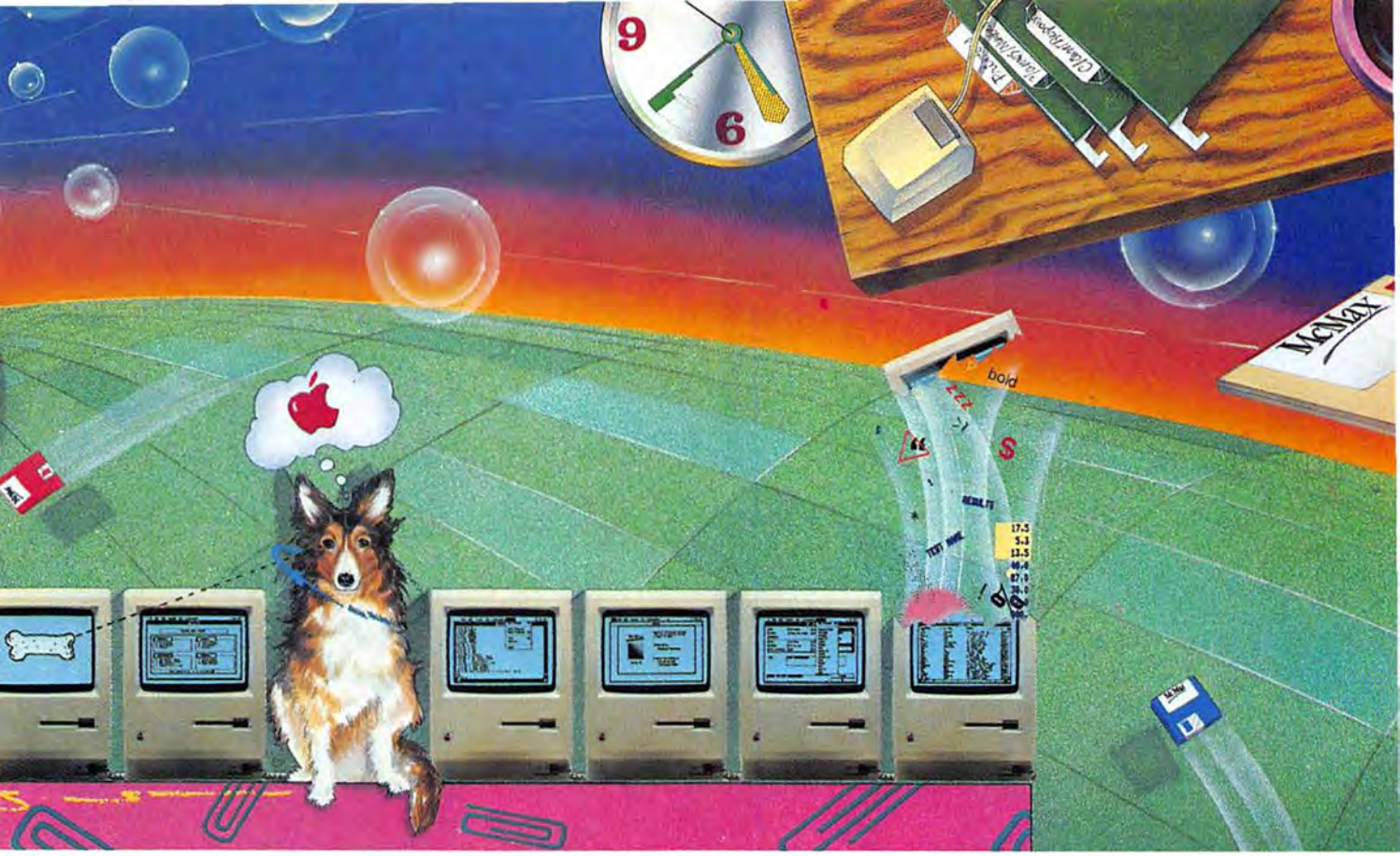
The software has some annoying idiosyncrasies. When you cut and paste between different windows, for example, it's sometimes hard to know what information is actually being transferred. The cursor has multiple functions in the Step Editor and Controller windows, and it's easy to forget whether you're outlining regions or painting events. You'll sometimes end up putting in data when you don't want to.

Some features are not implemented as well as they could be. Looping, for example, allows you to set different ending points for each track, but not start points. The quantization includes no "sensitivity" setting, whereby only notes a certain distance away from the beat are quantized, and the rest left alone—which would help preserve a track's rhythmic feel.

The Strip Data function doesn't go quite far enough. It needs the ability to sort notes out according to velocity values or durations. This would help immeasurably when cleaning up tracks. Most mistakes tend to be short and/or lightly played, especially with MIDI guitar controllers, some of which send out erroneous data at an alarming rate. It would also help to orchestrate keyboard improvisations in which the melody and harmony parts may not be separated by pitch, but could easily be sorted out by articulation.

Although you can open many windows, you can't open the same one twice, making it impossible to view data simultaneously on two different controllers or on two different tracks. The graphics in the controller-editing windows are designed so that controller events with a value of 0 (that is, releasing a sustain pedal) are in some cases completely invisible.

Tape-style punch-in and -out overdubbing, with the track running before the punch and the overdub ending automatically, is clumsy. You have to first erase the portion of the track you want to punch over, then record the punch on another track,



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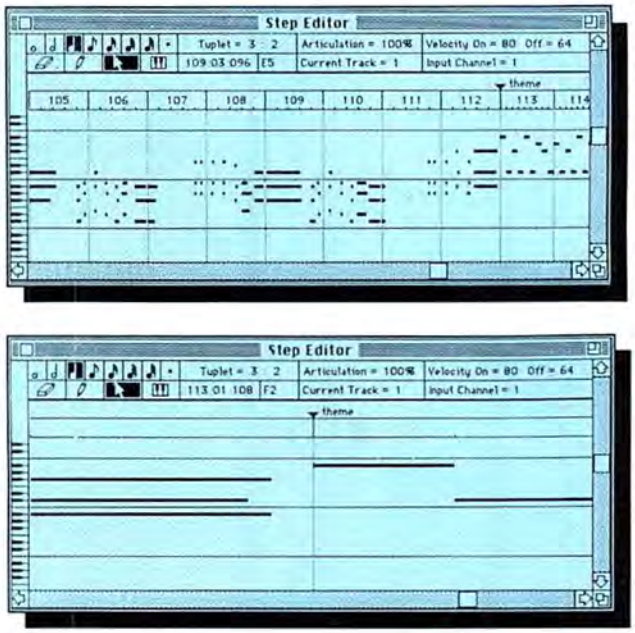
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The Step Editor window at minimum resolution (top) and maximum resolution (bottom).

then cut the new track, and merge it with the old. Yuck. While most Macintosh MIDI programs include a software switch that lets the program be used with a variety of interfaces, *Master Tracks Pro* only runs with 1-megahertz (MHz) interfaces. If you own an early interface, some of which run at 500 kHz or 2 MHz, you'll have to invest in a new one.

More important, however, are certain features that have been left out, and which professional users need, sometimes badly. One is a real-time position indicator for the cursor (it currently only reads in measures, beats, and clocks), which is a necessity for film and video scoring, where particular effects need to be "dropped in" at specific times.

The ability to examine a single event in detail is important, but sometimes you need to examine two or more events very close to each other. This is particularly important in those situations when two identical notes occur on a track simultaneously, which happens more often than you might think, particularly with guitar controllers. Right now, there is no way to distinguish between two such events, or even see them. A modification to the edit function that would allow viewing a short list of events would be very welcome.

The most serious problem, for me anyway, is the lack of a "chase" function for program changes or controllers. Let's say you have a track in which a synthesizer is a horn section for the first ten measures, and then there's a program change and it becomes a flute. You've stopped the track in measure 15, reset the counter to measure 5, and hit Play. The synthesizer is now playing the wrong instrument. You can change the patch by hand, but that can be a major hassle when you've got 16 synthesizers to keep track of, or if you're using a multitimbral synth where it takes a dozen button pushes to change all the voices. When controllers are being used to automate a mix, the problem is even greater. You could start a track in the middle and hear nothing, because when you stopped the last time at the end of the sequence, all of the volume levels went to zero! Currently, the only way to keep this from happening is to make sure the sequence is started from the beginning every time—a grossly inefficient way to use a sequencer. The solution is a chase function, where, just before the program starts to play, it automatically looks backwards over each track from the current starting point, finds the last program change or controller move, and spits it out. Thus, each synthesizer is automatically set to the right patch and every fader is in the right place no matter where you start. Controller and patch chasing requires a bit of fancy coding, but if *Master Tracks Pro* is to become the pre-eminent MIDI sequencer it deserves to be, its authors still have some work to do.

In my opinion, these omissions cost *Master Tracks Pro* half a mouse. But considering Passport Designs' record for improvements so far, in six months they may yet get their ears and whiskers back. In all other respects, this is the cleanest, clearest, most comprehensive, and easiest to use MIDI sequencer yet released. It doesn't offer fancy extras like algorithmic composition or notation generation (although a file-compatible notation program is planned for next year), but it does the job it's supposed to do extremely well. Granted, it's expensive, but if you're into MIDI, either as a professional or as a serious amateur, you've already spent plenty of money, and this program is well worth the extra investment.

PAUL D. LEHRMAN IS A BOSTON-AREA COMPOSER, RECORD PRODUCER, WRITER, AND SOFTWARE DEVELOPER IN ADDITION TO BEING A REGULAR CONTRIBUTOR TO *MACUSER*. THESE DAYS HE FINDS HIMSELF DOING A LOT OF MUSIC FOR INDUSTRIAL VIDEOS BY COMPANIES WITH THREE-LETTER NAMES.

MACUSER RATING

Master Tracks Pro

★★★★½

Follows Mac Interface	■ ■ ■ ■ ■
On-Screen Help	None
Printed Documentation	■ ■ ■ ■ □
Performance	■ ■ ■ ■ □
Support	■ ■ ■ ■ ■
Consumer Value	■ ■ ■ ■ ■

Comments: Full-featured second-generation MIDI sequencer that borrows from previous products, and adds a few neat twists of its own. Highly intuitive, easy to use, and rock-solid. **Best Feature:** The first program on any computer with graphic controller editing. **Worst Feature:** Missing (for now) a few features professionals need. **List Price:** $350. Requires 512K+, 1-MHz MIDI interface, and one or more MIDI synthesizers. Published by Passport Designs, 625 Miramontes Street, #103, Half Moon Bay, CA 94019. (415) 726-0280. Copy protected. Version 1.10 reviewed here.

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Lost in the Shadows

Shadowgate — a graphic adventure that scales new heights and delves deep into the murk.

THE WEAK LIGHT OF YOUR SPUTTERING torch casts eerie, ominous shadows on the thick, clammy walls of the corridor. Distant laughter and the faint clanking of chains echo around you — you're beginning to get nervous. So far you've been cautious; you've resisted the impulse to lift the candle by the guest book in the entryway — you've heard it triggers a fall through a trapdoor to certain death below. Everything you've seen has warned you to turn back, from the grinning skull over the front door to the howling banshee you accidentally released when you opened the first coffin on the left, searching for the secret passage deeper into the gloom. You wish you had a weapon, a powerful weapon — maybe you missed something somewhere? A weapon would be good, particularly a magic one. After all, legend has it that around the next corner you could meet the werewolf, or the wraith, or the Sphinx, or the fire-breathing dragon, or the Hound of Hell. . . . You shudder. Wouldn't it be nicer to be back at home, curled up in front of a blazing fire, sipping hot chocolate? But you must go on. . . .

Brace yourself — you have now entered the realm of *Shadowgate,* a graphics, text, and sound adventure game set in a crumbling medieval castle with more rooms and more dangers than you can count. Your challenge, of course, is to save the world from the terrible Warlock Lord, who is bent on nothing less than the destruction of civilization as you know it. As usual, only you can foil his plans to raise Behemoth and lay waste to the countryside; only you can stop him.

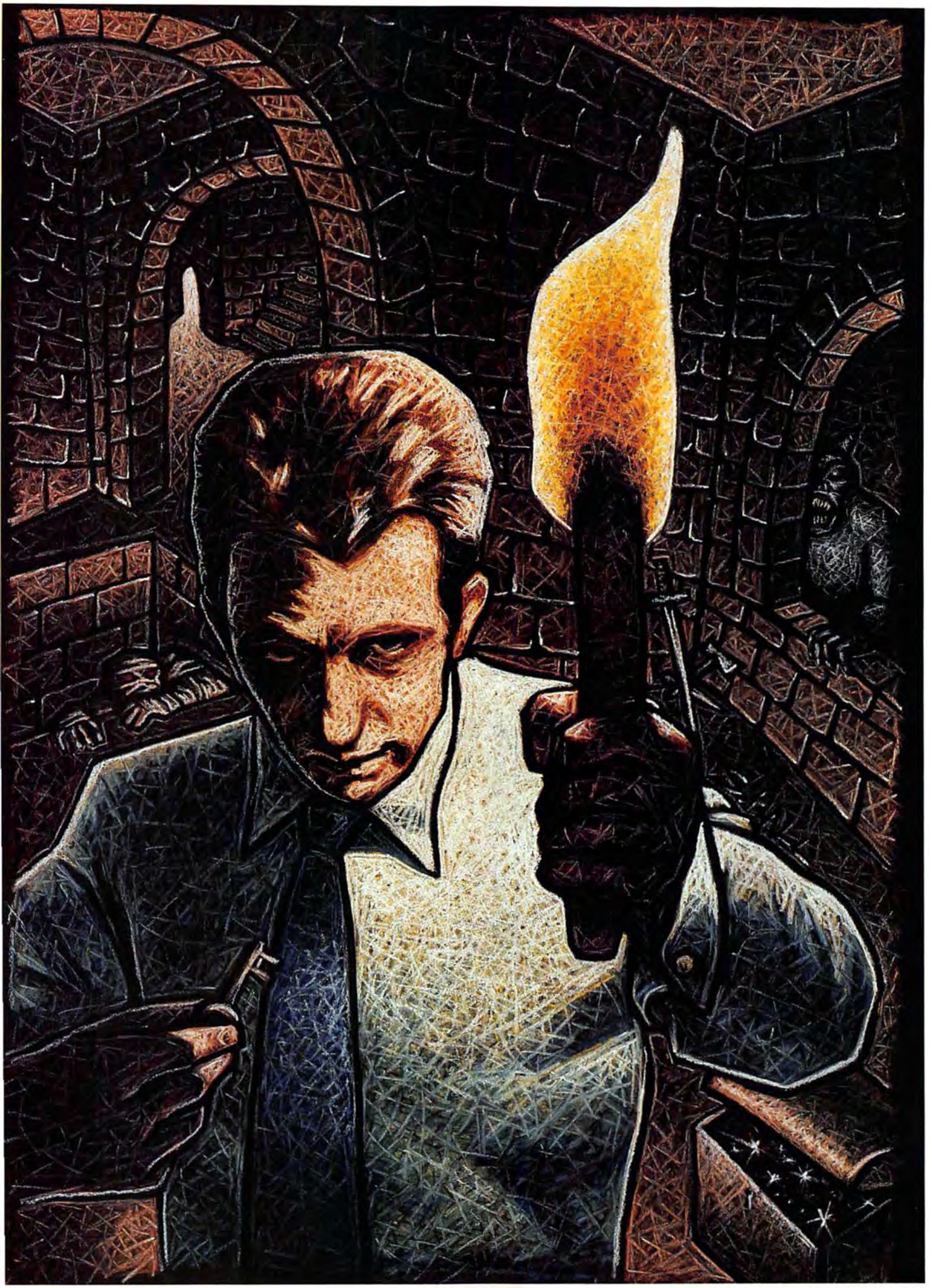
OFF WE GO ADVENTURING

Shadowgate is the third game in the popular series developed by ICOM Simulations and published by Mindscape. The first, *Dé ja Vú,* was set in a world of gangsters and guns; the second, *Uninvited,* enrolled you in a crash course in gothic thrillers. *Shadowgate* drops you into the genre of classic adventure game fantasy. You're a young knight errant, last of a long line of kings, confronting spells and sorcery, werewolves and witchcraft, magic and mythology.

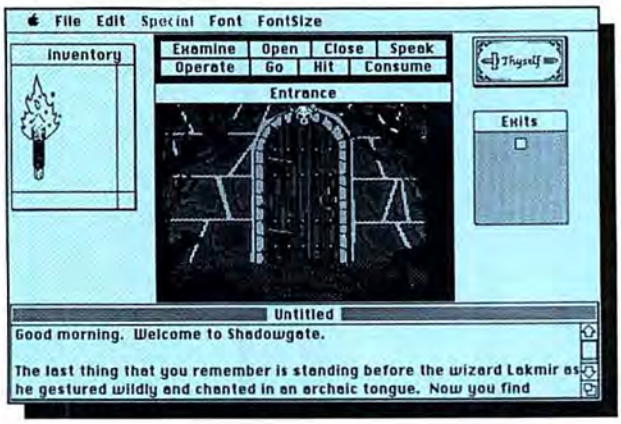
As in most adventure games, you're pitted against a menacing collection of monsters, demons, traps, and pitfalls. The game is really an interactive first-person journey. You begin it armed with only a flickering torch (that soon goes out if you're not careful), and your skill as a problem solver. Your quest takes you on a nightmare expedition through the chambers and passageways of the ruined castle, collecting booty and any objects you can find that might aid you in overcoming the obstacles in your path. And beware — there are obstacles aplenty, and every one of them is a mental puzzle that takes a little luck and a lot of ingenuity to solve. Proceed at your own pace; there's no clock, and you don't have to worry about honing your eye-hand coordination to shoot at targets or manipulate characters on screen. *Shadowgate* is built for the game player who enjoys cracking mysteries, sweating over conundrums, and burning out brain cells.

BY EZRA SHAPIRO

STEPHEN HALL



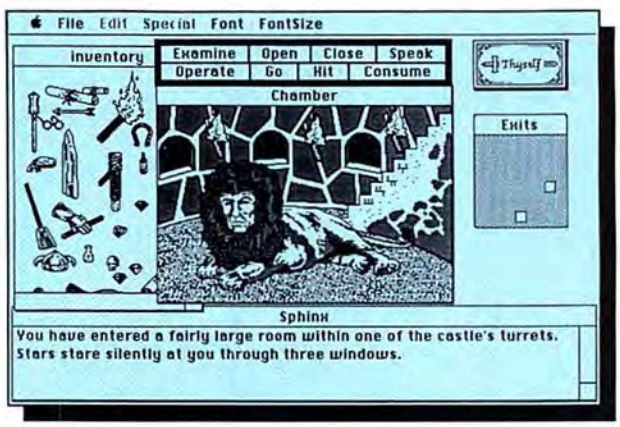
Lost in the Shadows



Here you go; Castle Shadowgate lies within. Clicking on the door will open it, but you'll soon need the key hidden under the skull. The File menu is used for saving games (this one is so new it's still untitled), the Font menus let you change the look of the text box, and the Edit menu merely lets you copy text to the Clipboard.



After collecting a nice load of goodies, you've been turned into a *flambé* by a resident dragon — you're dead. Expect to see this skull many times as you cruise the corridors.



The Sphinx will ask you riddles. If you don't have the answer, you're doomed.

This is a big game, not for the easily frustrated. It's impossible to estimate how long it will take you to play the game through to its grand finale, but give yourself a few long evenings at least. That's if you're a real genius at the logic of adventure games; if you're a normal mortal, *Shadowgate* can easily become an obsession for weeks (or months, in extreme cases). Since the game revolves around puzzle-solving, you'll often find it advantageous to put it aside for a day or two just to brood over a particularly sticky enigma.

Shadowgate comes on two packed 400K disks, so there's enough of it to provide you with weeks of head-scratching, bewilderment, and delicious irritation.

HOW IT WORKS

Adventure games have been around almost as long as there have been computers. The earliest ones were text-only affairs. The computer would spit out a short paragraph describing your surroundings. You'd respond by typing in your reaction ("Go north" or "Throw knife at dwarf" or "Drop gold"). As you moved about in the environment, you'd learn what to do with the things you found, and you'd develop a mental map of the place. (A hastily scratched paper map never hurt, either.)

The ICOM games are variations on this classic theme, but the interface is pure Macintosh. Rather than a merely verbal scenario, *Shadowgate* provides you with a picture in a graphics window that takes up about a quarter of the screen, occasional sound and/or animation, and a short amount of text in a scrolling window below. You don't have to imagine the scene; you see it in front of you.

Actions are almost entirely controlled by the mouse. You click commands on a bar directly above the picture rather than typing short sentences at the keyboard. The command list is short, but practical — you can EXAMINE, OPEN, CLOSE, SPEAK, OPERATE, GO, HIT, or CONSUME.

Objects in the picture that can be manipulated are selected by clicking on them with the mouse. To open a door, you click it, then on the command OPEN. To set fire to a rug, click on your torch, then on the command OPERATE, then on the rug. The resulting syntax is limited, but at least it isn't ambiguous. Playing pure text adventure games always required figuring out what words the computer understood; in the ICOM games, verbs are restricted to the commands on the bar, and you can find all available objects (or entrances and exits to the room you're in) by clicking the mouse on the graphics display.

Mac windows also simplify the process of collecting useful items as you meander through the world of *Shadowgate*. If you spot something you'd like to take with you, you merely select the object and drag it into an Inventory window on the left side of the screen. The window has the normal Grow box in the lower right corner, which you can drag out for a larger view any time you want to check out what you're carrying. If an object is a container of some sort,



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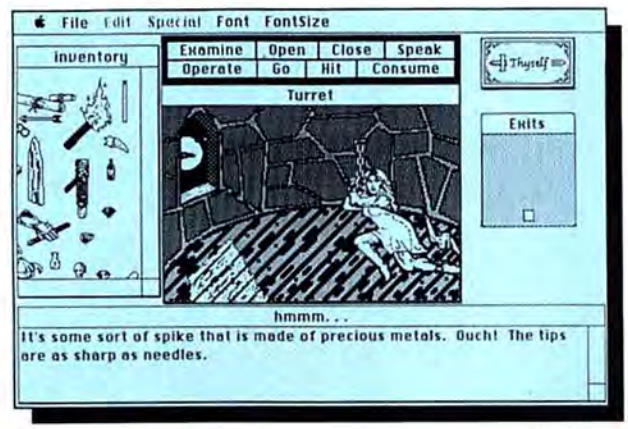
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like a box or a bag, you can click on it to open a window displaying the contents.

Dragging is not only used to collect things; you can also drop items back into the picture display, and move objects from location to location. If you find you're lugging around so many heavy items that you can't add any more stuff to your inventory, you can leave one or two things on the floor of a room and come back and get them later. (If you remember where you left them, and if you can find your way back.)

As you play the game, you'll also discover that graphic objects interact with each other. Three jewels found in a leather pouch early in the game are used to open certain doors. You have to slide them into jewel-shaped niches in the pictures in order to have the OPEN command act on the doors.

Another window shows all the exits available to you in your current position. Sometimes this exit map will display more doors than you can see in the picture. In that case, it's time to explore the room very closely; you've missed a hidden way out. And every so often, a really secret passage won't show up either in the picture or on the exit map until you've all but tripped over it; methodical exploration is the key.





This is about as suggestive as *Shadowgate* gets; note that the damsel in distress is not what she seems.

STAYING IN CONTROL

Adventuring is a simple process in the abstract — you move from one place to another, encounter brain-teasers, and try to figure out which of the found objects has the power needed to overcome a particular menace. That's the theory. In practice, unless you're gifted with a spectacular memory and extremely good luck, you'll have to apply more than a little effort. Dying can become a way of life.

Although the exit map is a helpful guide, it shows only one chamber at a time. *Shadowgate* has dozens of rooms; it's imperative to draw yourself a map, or make a few notes as you go. Also, since there's a limit on how many items you can carry at any one time, use the map to keep account of where you've put things — backtracking can be a major pain if you're disorganized. One example: light. This adventure takes place centuries before the invention of the light bulb; you must carry a flaming torch at all times to see where you're going. If your torch dies out, you're in trouble. Torches are stuck in the walls in many, but not all rooms, and each burns for a limited number of turns. You're in good shape if you carry a spare or two, but you can't possibly collect *all* the torches you come upon. Knowing where you can obtain a fresh source of light is critical to your success.

Because *Shadowgate* will let you boot from disks other than the original game disk, you can have your favorite desk accessories with you at all times. Any of the shareware drawing programs is a big help, as are the *Notebook*, the *Scrapbook*, and even an outliner like *Acta*. Some form of text editor is very important — you'll periodically stumble on scrolls containing magic words or riddles. It's a lot easier to copy the contents into a desk accessory than it is to cram yet another object into your inventory.

Shadowgate didn't seem to object to *Switcher* 5.1 on a Mac Plus with *System/Finder* 4.1/5.5, so it was possible to use *SuperPaint* to chronicle my experience. However, I don't advise trying this with less than 2 megabytes of memory (a good idea with *Switcher* in any case); loaded automatically, *Shadowgate* gobbled up an amazing 1280K of RAM. You can restrict this, of course, but *Shadowgate* operates more efficiently with more memory, and it will take anything it can get.

SAVING GRACE

For purists, the goal of any adventure game is to make your way through the maze without a single false step. Lotsa luck with *Shadowgate;* the odds are against you. This baby is so big and so complex that it's practically impossible to achieve perfection. You'll want to save games in process for one of two reasons. First, you might want to do something else, like eat a meal or get some sleep. Second, you could get a bad feeling



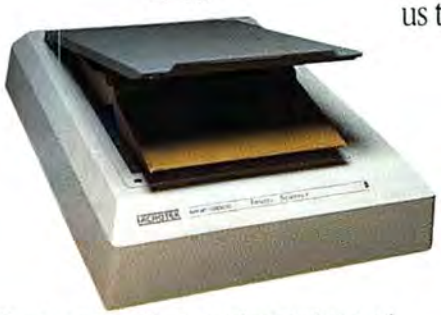
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about a maneuver you're contemplating and you don't want to wipe out all the progress you've made up to that point in the game. Let's say you discover an unusual flagon with a strange sweet-smelling liquid inside. If you drink it, you could gain magical powers — or fall to the floor poisoned. No problem if it's the former, but if it's the latter, you're dead and you'll have to start the game over from the beginning. So it makes sense to save a game just before attempting something risky (a little insurance is never a bad idea).

Here's where one of the nice bits of ICOM's program design comes in. Though the game is copy protected, the only requirement is that the original *Shadowgate* system disk be in the internal drive of your Mac. The data files provided on the second 400K disk can be copied to a hard disk or to an 800K disk. Saving a game employs the standard Save File dialog box, which lets you choose the drive and name the saved game. Each saved game occupies about 10K; with a hard disk you can save as frequently as you like. One word of warning — use intelligent file names if you plan to save often. You'll curse your stupidity if you can't remember which file gets you to a crucial spot.

CHEATER, CHEATER!

If you get really stuck, you can send five bucks to Mindscape for their hint booklet. And that's exactly what it is, too — nothing but hints. Don't expect to have the answer to your problem handed to you on a silver platter.

The opening section of the booklet is simply a list of questions ("What do I do about the mummy?" "I'm in the top room. When I try anything, the maiden turns into a werewolf and kills me."). This is essentially an index; the actual hints themselves are arranged in three graded sets. The A set is designed to give you a gentle nudge in the right direction, the B set is more pointed but still subtle, and the clues in the C set are more direct.

As an example, the A hint for the werewolf/maiden problem reads simply "You're dealing with a werewolf. Meditate on old legends." The B level is a bit more explicit: "Silver objects, especially weapons, are useful when werewolves are involved." Finally, the C hint gives you: "OPERATE the silver arrow (from the ledge room) on the woman."

Not all the C clues are this unequivocal, however. One of them reads, "Either use a saved game or keep going and try to find the cure. It's in the game somewhere." Real helpful, right? Another hint tempts you into drinking a vial of poison.

Each of the questions at the front of the book is followed by three numbers that direct you to the appropriate clues in the three hint sections. To protect you from learning too much — either inadvertently or by design — the hints in each level are out of sequence. You can't just read through them and learn the game solution; you've got to work for it. Between the veiled allusions and the scrambled answers, there's no easy way to just give up and learn the secrets. You're going to have to keep plugging away.

REACTIONS

Even if you're the type of person who finds text adventure games annoying in the extreme, there's something enchanting about the ICOM games. There's certainly a lot to look at, and the characters that populate *Shadowgate* are well drawn and intriguing. Some other games on the market employ rather elementary Draw-type graphics; *Shadowgate* uses the full panoply of the *MacPaint* palette. The puzzles (though maddening) are almost always logical once you've figured them out. *Shadowgate* can suck you into its web, even if your inclination is to resist its charms.

Once you're hooked, *Shadowgate* can be a time-consuming ordeal. Carefully consider your personality before launching into the game. *Shadowgate* can be as destructive to completing your homework, or to relations with your spouse, as buying a computer was in the first place.

There are only two things wrong with the game, and they're really criticisms of the adventure game genre rather than *Shadowgate*. First, when you've won (you'll know because you'll be signaled by a burst of celestial music and the opportunity to print yourself a *Shadowgate* diploma documenting your triumph), the game is over for good. Give it away to a friend or put it in a closet. Second, if you want shortcuts, there aren't any. You have to play through all the obstacles to reach the finish. Once you've mastered the logic and grown tired of the concept, there's no way to skip ahead to the last chapter.

But on the whole, *Shadowgate* is good clean fun. It's a little scary, but mostly amusing. Parents should have no problems giving the game to young children (there's no minimum recommended age, but I'd guess that *Shadowgate* requires reading and logic skills of about a 4th grade level at least) or playing it themselves.

One final bit of advice. Though you won't find a use for every object you find, you *will* need to use every command available. When you think you've tried everything, you haven't.

So gather your strength, get some rest beforehand, equip yourself with a pile of your favorite snack foods, and prepare for the siege.

EZRA SHAPIRO WRITES ABOUT COMPUTERS FOR A VARIETY OF PUBLICATIONS. HE FINDS ADVENTURE GAMES SIMILAR, BUT INFINITELY PREFERABLE, TO DOCUMENTATION FOR RELATIONAL DATA BASE SOFTWARE.

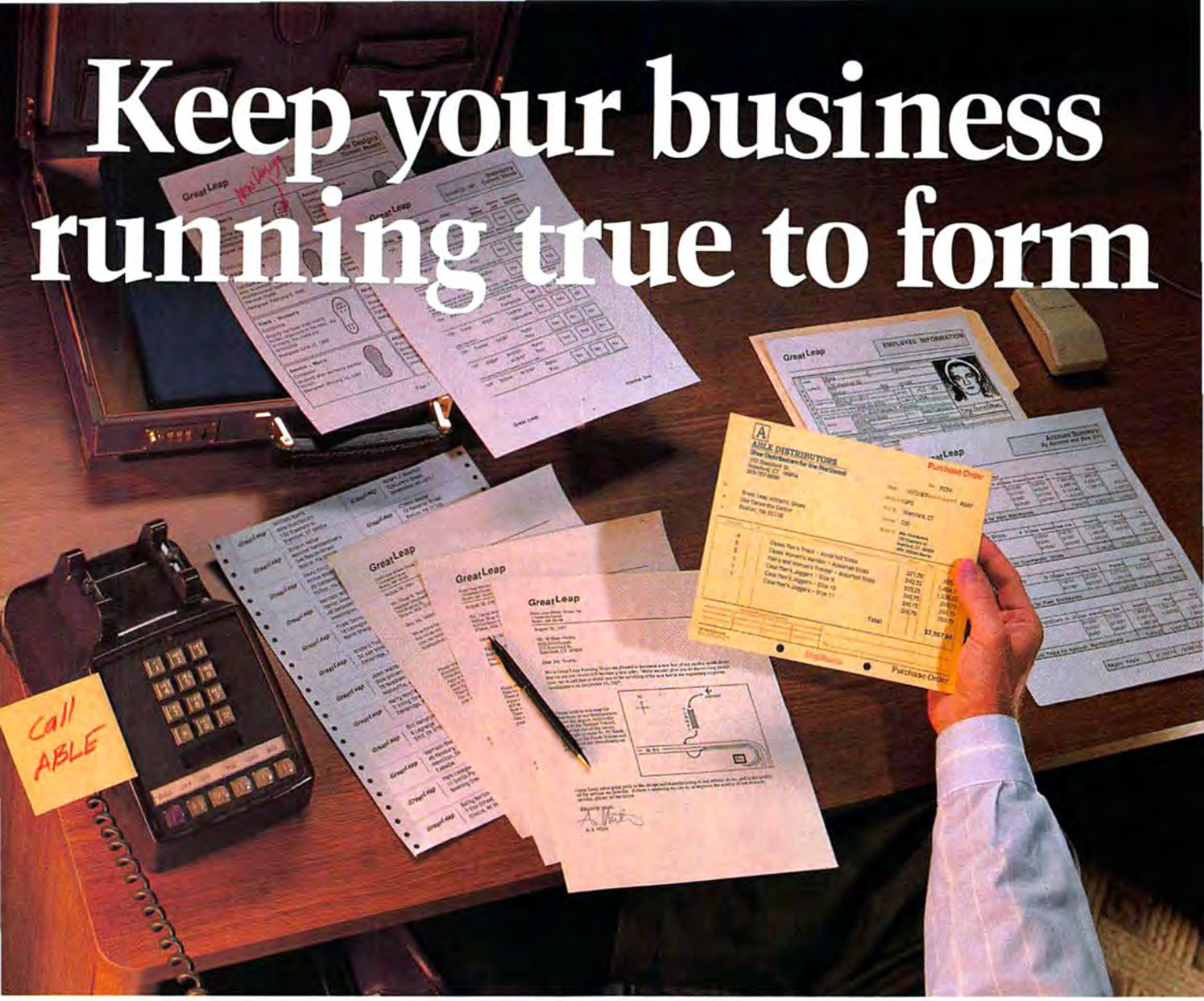
MACUSER RATING

Shadowgate ★★★★½

Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	■ ■ ■ ■ □
On-Screen Help	None
Performance	■ ■ ■ ■ ■
Support	■ ■ ■ ■ □
Consumer Value	■ ■ ■ ■ ■

Comments: A text and graphics adventure game, with some sound and animation, set in a decaying castle in the Age of Magic. **Best Feature:** Mouse-driven interface is easy to learn and unambiguous. **Worst Feature:** If you don't like the concept, this is a one-line joke; can get tedious. **List Price:** $49.95. Requires 2 disk drives and a minimum of 512K. Published by Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062. (312) 480-7667. Copy protected.

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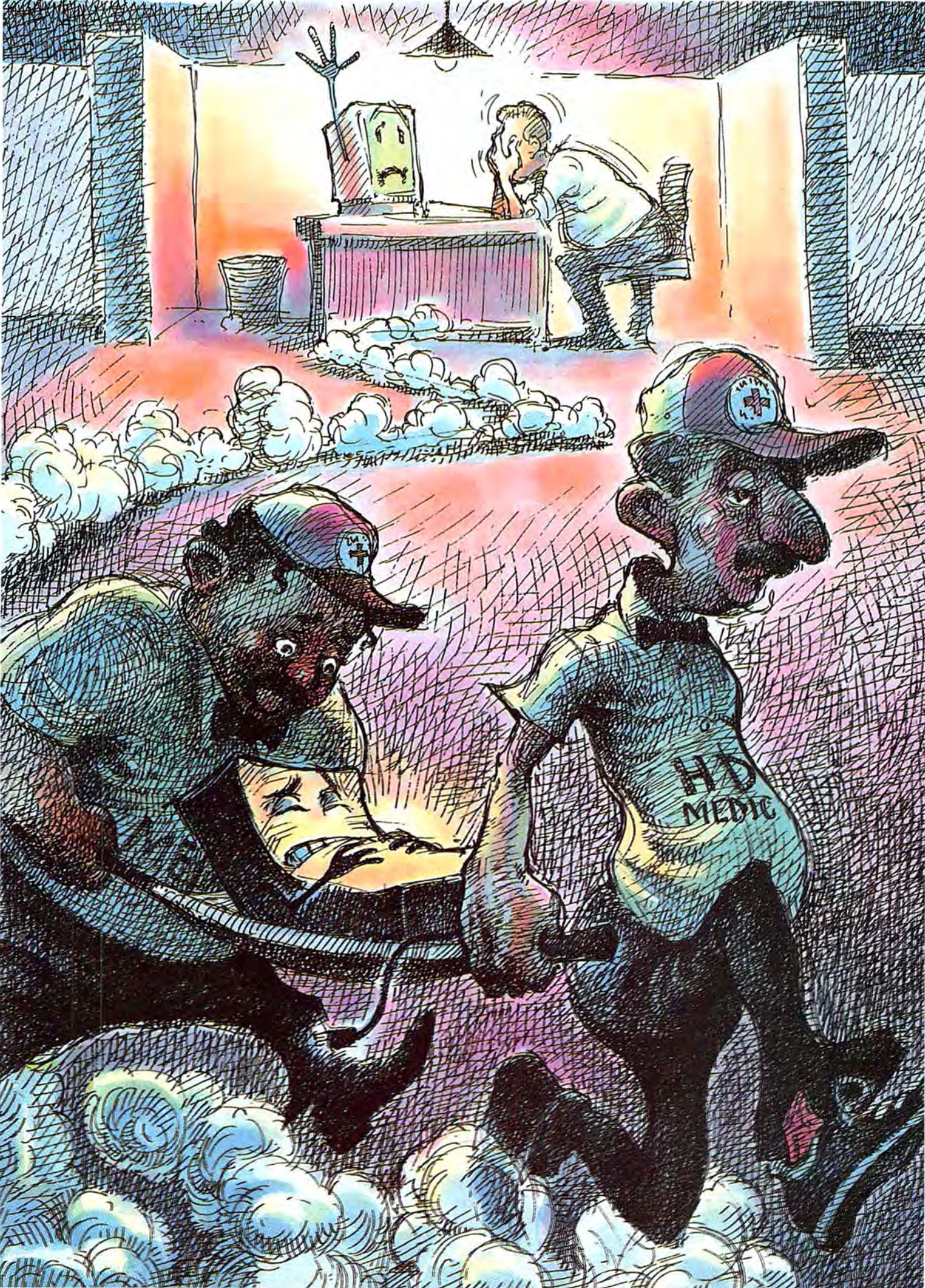
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Software problems can wreak havoc upon otherwise functional disks. When disks have the equivalent of a heart attack, there are a number of steps that can be taken to try to recover them. There are occasions when the disk itself is not bad, and it may be possible to correct the problem without having to reformat the disk and restore the data from a backup. This article describes some of the steps that can be used with Apple hard disks, but most of the information pertains to all hard disks. For example, the *HD SC Setup* program is specific to the Apple drives, but there is probably a similar utility for every hard disk.

I'll focus on SCSI disks since they form the majority of hard disks currently in use and are more complex in terms of their booting sequence. For other hard disks, like the standard Apple HD-20, most of the information still applies, but the obviously SCSI-specific sequences can be ignored. For example, the standard HD-20 also has an installer program, although it is different than *HD SC Setup*.

This article includes a technical description of how hard disks boot. Don't worry if some of the terms are so unfamiliar as to appear meaningless to you. The overall discussion and step-by-step procedures can still help you solve a specific problem.

ATTACK OF THE NASTIES

There are a number of unusual conditions that a hard disk may find itself in.

1. The data is intact, but the hard disk won't boot.

BY BOB JOHNSON

MATT FAULKNER

2. The SCSI disk won't boot and only shows up after running *HD SC Setup.*
3. The disk will boot but hangs part way through the boot process.
4. There are data errors while the disk is running.
5. The disk is very slow returning to the *Finder.*
6. The computer crashes or hangs when returning to the *Finder.*
7. The disk appears in a "This disk is bad" dialog.
8. The disk never shows up at all.

These problems can develop from a number of sources, including system crashes, rebooting at bad times, power fluctuations, malicious software, old software, buggy software, and so on. In general, these problems are software-related, since the hardware itself is very rarely defective.

A BOOT TO THE HEAD

You need to know exactly what happens during the boot process.

The "This disk is bad" dialog is the worst of the possible errors that commonly happen to hard disks.

Armed with that knowledge you can often see where and possibly why the process is failing. We'll now detail what happens during a normal Mac boot.

A SCSI disk can be thought of in the fashion shown in Figure 1. The important thing to note from this diagram is that the Macintosh volume is a subset of the entire SCSI disk. There can be more than one Macintosh volume on a given disk, or even other volumes that are not Macintosh volumes.

Here's what happens during a boot:

1. Check the SCSI port.

Before starting the boot process, the screen will be filled with the gray desktop pattern. Then, before the Mac checks for any SCSI devices, it will first reset the SCSI bus. This is to make sure the bus was not left in a bad state.

The Macintosh will then start a cycle through all 7 allowable SCSI IDs (from 6 to 0) to see where and which disks are connected. It creates and keeps a table of all disks that are connected.

For each disk that is connected, the ROM boot code will use the SCSI Manager to read in the SCSI partition information to find where the driver is located on the disk. The signature of the SCSI partition information is also checked to be sure that the device is valid.

The SCSI Manager then reads the driver into memory. Once the driver is loaded for a given disk, the driver is called to install itself. The driver will usually arrange to have its volume mounted by the *Finder.*

The previous two steps are repeated for each disk connected. At this point, there may be a number of drivers in memory, but there are no volumes, since none have been mounted yet. Generally there is one driver per disk, but some drivers can handle more than one disk at a time.

2. Decide which disk is to be the startup disk.

The next step is to determine which volume will become the startup disk. If there is a floppy available it will always be the startup disk. During this process the disk chosen as the startup disk is not known to be valid. The *System* file and boot blocks are checked later. Serial HD-20 hard disks are connected in a fashion that is very similar to a floppy, so if a bootable HD-20 is connected it will be the startup disk.

There isn't a search for floppy devices like there is for the SCSI disks since the driver for the floppies will notify the *System* when it detects one.The first floppy found will be used as the startup disk. If there are multiple floppy drives, the others will be mounted by the *Finder,* after the boot is complete. The SCSI devices that are on-line are not explicitly mounted at this time, either. The *System* is aware of them, but the actual mounting will be handled later by the *Finder.* Thus, at boot time, there is only one volume mounted (during execution of the Macintosh boot blocks). The others will be mounted afterwards by the *Finder.*

On the new Control Panel there is a Control Device (cdev) called the Startup Device. This Startup Device cdev allows the user to choose which device the system should try to boot from first. This can only be used on the Macintosh II and SE. The drive number, driver reference number, and driver OS type are stored in parameter RAM to allow a chosen device to be the boot disk. Remember, however, that the floppy drives still have precedence over SCSI devices. The standard HD-20 can be chosen as the Startup Device, though, since it uses a different driver reference number. If the drive number that is stored as the Startup Device is invalid, or has a read/write error, then another disk in the chain will be chosen as the next bootable candidate.

3. Execute the Macintosh boot blocks.

Once the Startup Disk has been chosen (floppy, SCSI or other disk) then it's time to read the Macintosh boot blocks from blocks 0 and 1 of the volume. Those boot blocks determine various parameters in the system, such as whether a *Macsbug*-like debugger will be loaded, the name of the startup program (not always the *Finder),* how big to make the event queue, how big to make the system heap, and so on. They also contain a signature identifying them as Macintosh boot blocks, and a version number to differentiate between different boot blocks.

After the boot blocks are read and the signature verified, the smiling Macintosh is displayed on the screen. The smiling Macintosh basically means that valid Macintosh boot blocks were found.

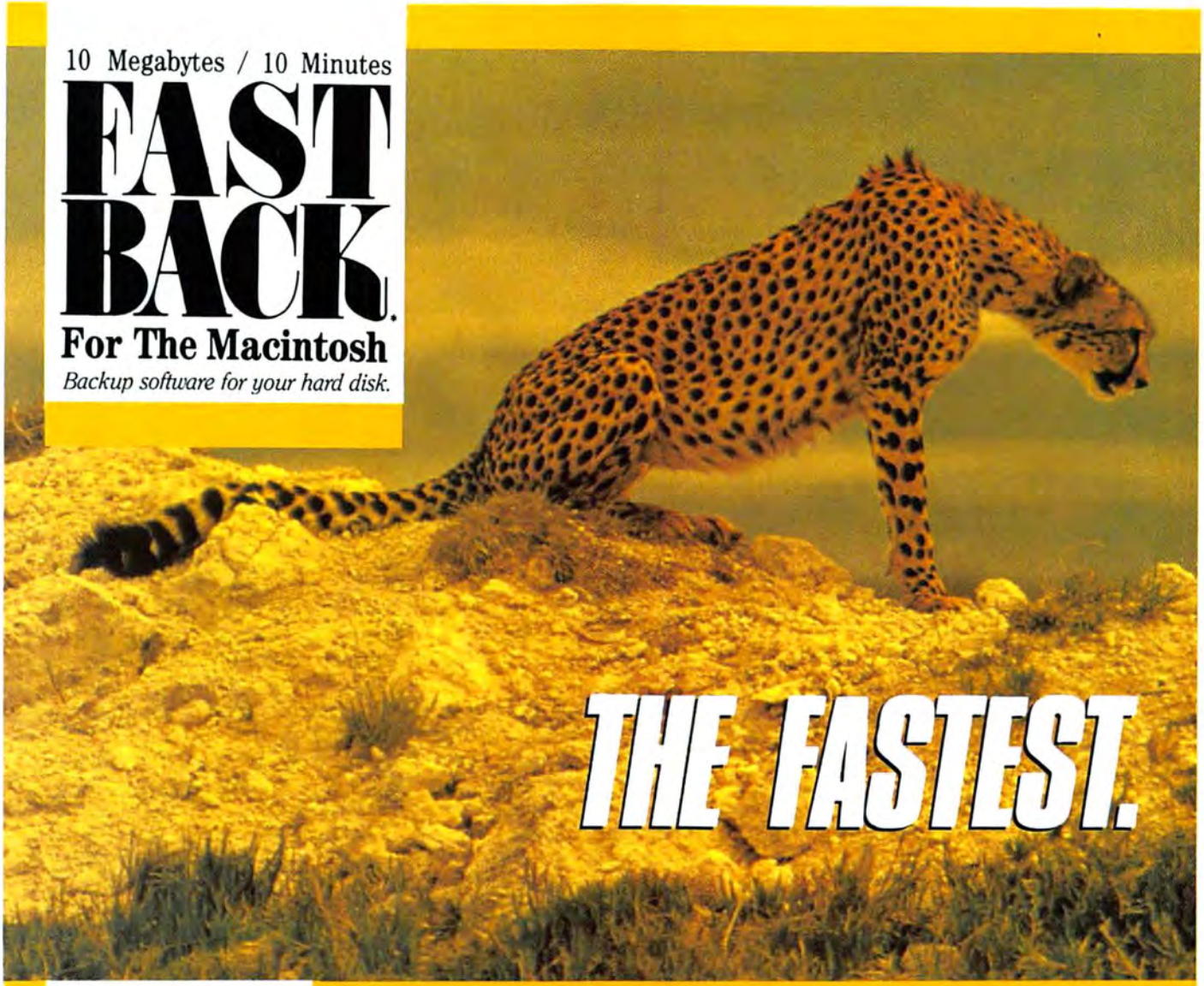
On 64K ROM machines the boot blocks are executed by jumping to the code that follows the header information in boot block 0. On the newer Macintoshes the boot block version number is checked and if it is "old" the boot blocks will be skipped. The same code that would

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have been found in the boot blocks is found in the ROM itself. Regardless of which kind of Macintosh it is, the following steps apply. For the newer Macintoshes the boot blocks are usually used only for the parameters stored in the header.

Mount the chosen startup volume. If the mount fails, the process starts over at the point where a startup disk is being chosen (step 2 above). The failing volume is marked out of the list of candidates so that it won't be used again.

Next the System file is found and Working Directory is created, if needed, for the System Folder. This is only done for HFS volumes, and the directory ID is set to the blessed folder. The blessed folder is saved in the volume header as part of the FinderInfo field. If the directory ID is wrong, the System file won't be found, causing it to start over again (at step 2).

The System file is opened. If the file can not be opened, the process starts over again (at step 2, naturally). The Startup Screen is then loaded and displayed. If there is no Startup Screen, the normal "Welcome to Macintosh" message is displayed. Seeing a Startup Screen or "Welcome..." means that the System file was found and opened successfully. This is true on Mac SEs and IIs. On the Macintosh Plus and 64K ROM machines, the Startup Screen is displayed before the System file is opened.

The debugger and disassembler are installed if found. The names of the debugger and disassembler are found in the header of the boot blocks and are usually *Macsbug* and *Disassembler,* respectively.

The *data* fork of the System file is opened and executed. The data fork contains code to read in the PTCH resources which patch the ROM. Any INITs actually in the *System* file are now executed. The last INIT is INIT 31 which looks in the System Folder for other INITs to be executed.

The file specified by the boot blocks as the startup application is looked for and found on the volume. If the file exists, it is launched. If not, the *Finder* is launched. If the *Finder* is not found, you get to see the "Can't launch Finder" alert.

4. The *Finder* uses the Desktop file on the volume to draw the desktop.

If the startup application was the *Finder,* it opens the Desktop file on the startup volume in order to draw the desktop. When it finishes with the startup volume, it looks for any disk volumes that need to be mounted. If there are any, the volumes specified are mounted (by the ROM) and the results passed to the *Finder.* If a mounting operation fails for any reason, the bad result will be passed to the *Finder.* At that point the *Finder* puts up the "This disk is damaged" alert and asks if the volume should be initialized or ejected. If ejected, the driver for that volume still exists, but the volume is unmounted. For each volume that the *Finder* sees, it opens the Desktop file on the volume to get the information that it needs to build the desktop. If the Desktop file is not found on a volume, it is created. If there are any errors while creating or using the Desktop file, the *Finder* will display the "This disk needs minor repairs" message. If the OK button is clicked, the *Finder* will delete the old Desktop file (along with any Finder Comments in it) and create a new one. If that fails, the volume is unmounted and deemed unusable by the *Finder.* This can happen if the disk is locked or too full to add a Desktop file. If that disk was the startup volume, the computer is reboot-

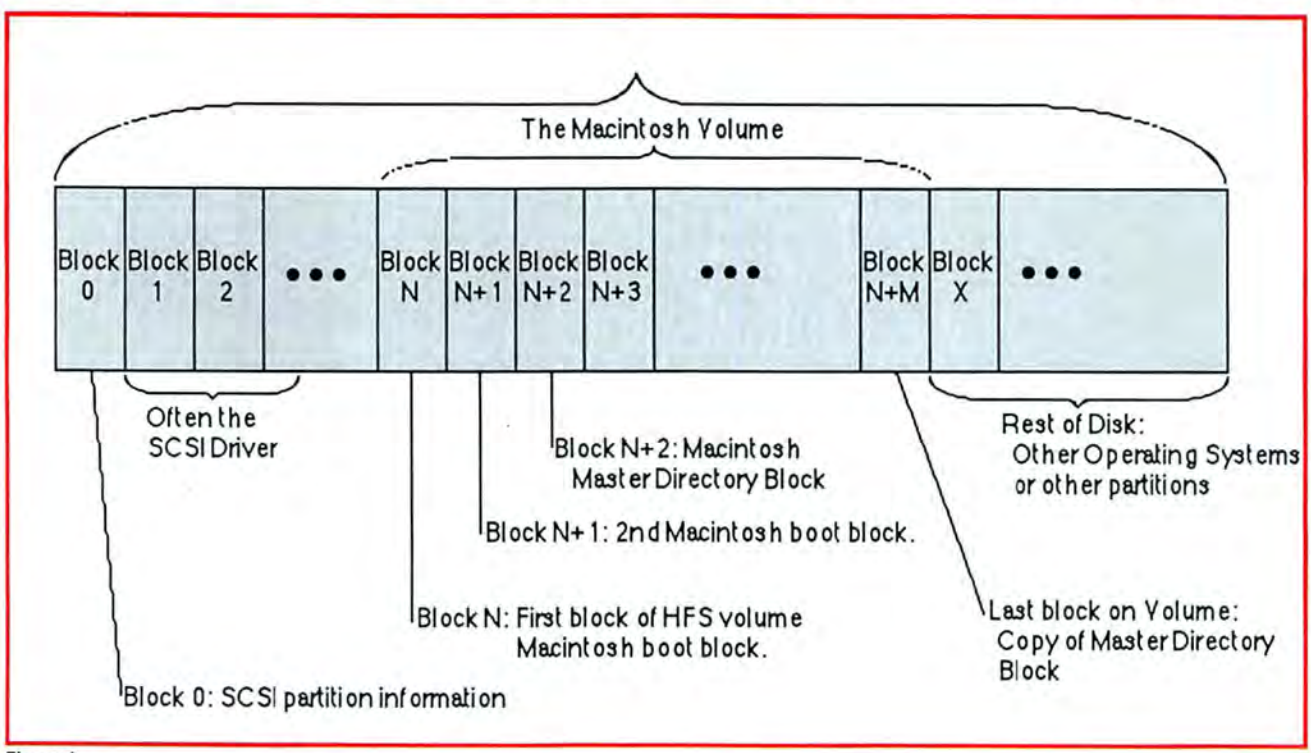


Figure 1

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Hard Disk Medic

ed since the *System* was forced to unmount the startup volume, and cannot run if there is no startup volume.

Here's an example of how your knowledge of the boot process can be used to pinpoint a problem. Let's say that what you're seeing is the smiley Macintosh appearing, but immediately going away to be replaced with the flashing question mark. The disk does not boot.

In this case, we know that the boot blocks were found on our startup volume, since the smiley Macintosh was displayed. We know that the System file was not found, or failed to open, since we never got the Welcome message. This calls for throwing away all the System folders on the volume, and starting again with a new System folder. If there is more than one System folder on a volume it is possible to confuse the system.

BO3B's BOOT REPAIR

Here are step-by-step processes that can be used to fix some common booting and volume problems. This is not intended to cover every case.

Before following any of these procedures you should always back up as much of the data as possible. None of these procedures should cause data loss, but we are dealing with disks that are already damaged.

For most hard disk users, it is not sufficient to merely have the device running. It is generally a good idea to make the system as robust as possible in order to avoid some of the problems that might cause a volume to become wholly unreadable.

The ultimate fix for any problem is to reinitialize the volume from scratch and rebuild the volume with the *Finder* or a restore operation that uses the File Manager. This is guaranteed to fix anything except hardware problems, and will give you the most solid system. If your system is acting funny, you can try the following sequence, which is the next best thing to initializing the disk. This sequence will not make you rebuild the disk, but can be fooled by some disk problems. If everything passes, then the disk is in good shape — maybe not perfect, but good. This sequence will not damage any data on the disk, and is safe to use on a weekly basis. It's like an HMO for hard disks.

1. Power down the entire system, including the hard disk that is suspect. Power up again, hard disk first.

2. Run the latest version of *HD SC Setup* (or equivalent) and UPDATE the drivers on the disk. For Apple's SCSI hard disks, this also fixes the parameter RAM. For non-Apple drives, the parameter RAM can be reset using the Control Panel.

Your goal is to make your system as stable as possible. If things are acting strange, it doesn't hurt to go through the entire process of testing the drive.

3. Run the TEST DISK option in *HD SC Setup* (or equivalent). If the test fails, reinitialize the volume, since it is not worth risking future problems.

4. Run the the latest version of the *Disk First Aid* utility. This utility will work on all HFS volumes. Have it check the volume for consistency. If it reports any errors, you can have it fix the problem, but the safest path is to reinitialize. There are some problems that *Disk First Aid* won't catch. If *Disk First Aid* says a volume can't be verified, reinitialize.

5. Rebuild the Desktop file by holding down the Option and Command keys when returning to the *Finder*. Remember, though, that this step will destroy all the Finder Comments (including version information) in the GetInfo boxes.

If you can successfully perform all of these steps, the volume will be as solid as it can get without reinitializing the disk. If things are still funny, it is time to take the last recourse, and reinitialize.

That's fine for cases where you

think something might be going wrong, or as a way to check the health of your disk before problems strike. Here's what to do if one of the nasties has already struck.

Problem: The volume won't boot, but if the computer is booted with a floppy disk the volume shows up on the desktop and can run normally. Analysis: We know that the driver is being loaded and working, since the volume shows up at the desktop. The volume is also mountable, since it shows up with no problem. This implies that the Macintosh boot blocks are wrong, or the blessed folder is wrong. Clues such as the smiling Macintosh can tell you how far the process got before it failed. For example, if the smiling Macintosh never appeared, we know that Macintosh boot blocks were not read successfully. When the volume is fixed and bootable, it would be a good idea to go through the steps above to make the volume as solid as possible.

Solution: follow these steps. If a given step doesn't apply to your computer, skip it and go on to the next. For example, Mac Plus users don't have a Startup Device, so they can't reset their PRAM.

1. Power down the entire computer, including the hard disk. Try to boot again. If it works, you are done.

2. Use the Control Panel's Startup Device to set the hard disk as the Startup Device. This will also reset some of the bytes in parameter RAM. Try rebooting.

3. Run *HD SC Setup* (or equivalent) and perform the Update Drivers procedure. In the *HD SC Setup* case this will also rewrite the parameter RAM. If you are not using *HD SC Setup,* blast the parameter RAM with the Control Panel. Try rebooting.

4. Delete *all* System Folders from the hard disk. Using *Find File* or something similar to be sure that there are no stray copies of the *System* or *Finder* buried in some long lost folder. Copy a new System Folder to the volume, using the *Finder*. This process will fix bad boot blocks, as well as a bad blessed folder. Try rebooting.

5. If it still won't boot, there is

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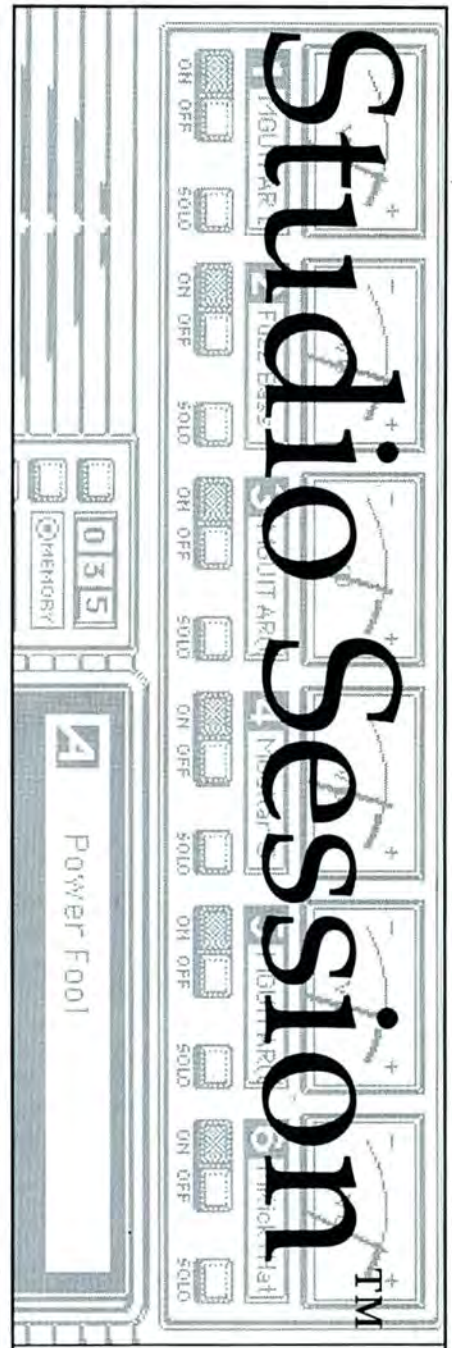
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something very strange happening. Whenever things get too weird it is usually time to start over: reinitialize.

Problem: The disk does not even show up at the *Finder* when the system is booted with a floppy. After running *HD SC Setup* (or equivalent) the volume will appear on the desktop and be usable. Analysis: Since the volume does not show up at the Finder at first, this implies that the driver itself is not getting loaded or is working improperly, since the *Finder* was not notified that the volume was to be mounted. Solution:

1. Power down completely, including the hard disk.

2. Run *HD SC Setup* (or equivalent) and Update the Drivers. For non-Apple drives, update the drivers on the volume (this rewrites the SCSI partition information as well) using the utility that came with the disk. Reset the parameter RAM using the Control Panel.

3. If the disk still cannot be booted or does not show up at the *Finder* after booting with a floppy, the volume is too weird and should be reinitialized.

Problem: You can see the volume being accessed (the run light (LED) on the front panel flashes), and the booting seems to work but never makes it to the *Finder*. Analysis: This implies that all is well until the *System* tries to actually launch the *Finder* or startup application, although it is also possible that the *System* file is causing something to hang. Solution:

1. Power down completely.

2. Boot with a floppy so that the floppy is the startup disk and the volume in question can be seen at the *Finder*.

3. Delete all System Folders on the hard disk. Put a new System Folder on the disk. This should fix a corrupted System file.

4. If still funky, show the disk who's boss.

Problem: There are data errors while the disk is running. This case usually evidences itself by messages at the *Finder* when trying to copy files. Messages like "The file ^0 could not be read and was skipped" usually mean that the drive is passing back I/O errors. Analysis: This usually means that there is a hardware failure, but it can occasionally be caused by bad sectors on the disk itself. If the sectors are actually bad, it is generally necessary to reinitialize the volume. Solution:

1. Power down completely. Reboot and see if the same file gives the same error.

2. Run *HD SC Setup* (or equivalent) and perform the Test operation. This will fail if there are bad blocks on the device. If there are bad blocks, it's necessary to reinitialize the volume.

3. Check the SCSI terminators to be sure they are plugged in correctly. There can be no more than two terminators on the bus. If you have more than one SCSI drive you must have two terminators. If you only have one drive, you should use a single terminator. If you have more than one drive, the two terminators should be on opposite ends of the chain. The idea is to terminate both ends of this wire that goes through all of the devices. If you have a Macintosh II or SE with an internal drive, that drive will already have one terminator inside the Macintosh at the front of the cable.

4. Make sure the SCSI cables you are using are OK, by swapping them with known good ones. If the problem disappears, the cable is suspect.

5. Swap the terminators in use with known good ones to be sure they are OK.

6. Try the drive and cable on a different Macintosh to be sure the Macintosh is OK.

Problem: The disk is very slow returning to the *Finder*. Analysis: If the computer has gotten slower with age, it is probably due to a problem with the Desktop file. If a volume has been used for a long time, the Desktop file can grow to be very large (hundreds of K). Reading and using a file that big can slow down the *Finder* when it is drawing the desktop. If you have a large number of files in the root directory, this will also slow the computer down. A large number of files (500 to 1000) in a single folder can cause performance problems as well. If a volume has been used for a long time, it can also have become fragmented. Solution:

1. Rebuild the Desktop file and see if it gets faster.

2. Look for large numbers of files in any directory and break them up into other folders if needed.

3. Run *Disk First Aid* to be sure the volume is not damaged.

4. Reinitialize the volume and restore the data using File Manager calls to fix a fragmentation problem. Using the *Finder,* or a backup program that reads and writes files is a way to use only File Manager calls. You cannot fix a fragmentation problem by doing an image backup and restore.

Problem: The computer crashes or hangs when returning to the *Finder*. Analysis: This can happen if the Desktop file becomes corrupted. There are occasions when this can happen if the HFS structures on the volume are damaged. Solution:

1. Rebuild the Desktop file.

2. Run *Disk First Aid* to be sure the volume is not damaged; a boot floppy with the Set Startup set to *Disk First Aid* will allow you to test a volume that cannot be displayed at the *Finder*.

3. Travel the path of ultimate recourse if nothing else seems wrong with the volume.

Problem: The disk name appears in a "This disk is bad" dialog. Analysis: This is the worst of the possible errors that commonly happen to hard disks. If the message is "This disk is bad" or "This is not a Macintosh disk," the HFS structures on the volume have been damaged. In particular, the Master Directory block on the volume has been damaged. The driver and SCSI partition information are probably OK, since this dialog shows up when the *Finder* tries to mount a damaged volume. Don't click the Initialize button unless you are sure you want the volume to be erased. In these cases, it is nearly always better to just reinitialize the volume after you have saved whatever information you can. Solution:

1. Power down completely. Occasionally the controller in the hard disk itself can crash.

2. Run *Disk First Aid*. For these

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Eluding Bad Tempered Boots

Here are some tidbits (in no particular order) that can be useful in avoiding the nasties.

1. SCSI cables have a lot of wires in them, and are thus rather bulky. It is best to avoid bending the cables too much or too often, since the wires inside will break if overstressed. Don't put wild kinks in a cable in order to make it fit behind a Mac.

2. If there is no default volume stored in the parameter RAM with the Startup Device cdev, then the first drive that is in the drive queue will be the Startup Device. Since SCSI drives are added in highest ID order, that means the larger SCSI IDs will have a higher "priority." Macintosh IIs and SEs default to the internal hard disk. Macintosh Pluses don't support the startup device, and thus always use the highest ID.

3. If the parameter RAM is trashed for some reason on a Macintosh II, the boot process can fail since a driver OS type is stored there as well as on the disk. If the OS type is wrong, the ROM will skip that driver, making the disk unbootable. On the Macintosh II/SE, the battery is no longer removable to fix parameter RAM problems. To correct this problem the Control Panel now has a feature that will allow you to clear parameter RAM. Hold down the Option, Command, and Shift keys while opening the Control Panel to reset parameter RAM, forcing it to be rebuilt. That will lose all of your settings except time, but might just fix some booting problems.

4. The Macintosh II and SE both have a new feature that will allow you to skip having any hard disk mounted. Hold down the Option, Command, Shift, and Delete keys as you Restart to have the startup code skip any SCSI hard disks on the system. This can be useful if you are booting an old System file that does not understand HFS disks (like *System* 2.0/*Finder* 4.1), and want to avoid having your hard disks on-line while you do something shaky. While it's easier to just turn external disks off before you restart, this is the way to skip internal hard disks.

5. Since the parameter RAM can be trashed in a way that makes it impossible to boot a volume on the Mac II (looking for the wrong OS type), *HD SC Setup* was modified to fix this problem. If you have version 1.3 or greater, the parameter RAM bytes that determine booting will be reset to fix some boot problems that occur. The parameter RAM is fixed when the Update button is clicked. This does not invalidate the rest of parameter RAM, it merely fixes the bytes used for the Startup Device. The Mac Plus cannot have these parameter RAM problems since it does not support the Startup Device. The Mac SE won't have the OS Type problems, but may boot off the wrong disk if its parameter RAM is trashed.

6. When the *Finder* copies a new System folder onto a disk that does not already have a System folder, that new folder will become the blessed folder. Its Directory ID will be saved in the volume header. In addition, the Macintosh boot blocks will be copied from the current startup device to the destination device. This is the best way to fix System folder or Macintosh boot block problems. In order for the blessed folder to be set correctly, all System folders on the volume should be deleted before copying the new folder there.

7. If the Desktop file is damaged for whatever reason, it can be deleted by holding down Option and Command whenever the *Finder* is starting up. This will force the *Finder* to rebuild the desktop from scratch. When the desktop file is rebuilt you lose any Comments in the Get Info boxes.

8. On the 64K ROM machines (unenhanced 512s), whenever something goes wrong during booting (like System file not found, bad boot blocks, and so on) the Sad Mac icon is displayed. Starting with the 128K ROM machines, whenever something goes wrong the ROM jumps back to the start and tries to find another disk to use.

cases, it is usually necessary to create a boot floppy with Set Startup set to *Disk First Aid*. When the floppy is booted, *Disk First Aid* will be run early in the process. This will allow you to test the volume, even if it can't be mounted.

3. Even if the volume is recovered, it still should be reinitialized (after the data is recovered) to be sure that any hidden damage is repaired.

Problem: The disk appears to be missing. The volume does not show up at the *Finder*, and does not show up in *HD SC Setup*. At boot time the access light (LED) does not flash. Analysis: This is usually a hardware problem. The drive is not responding to SCSI requests at all, so the system cannot tell a drive is attached. Solution:

1. Power down the system, including the hard disk.

2. Make sure that the SCSI ID on the drive does not conflict with any other in the system, including the Macintosh, which is ID 7. (If you have an internal hard drive, it should be ID 0.)

3. Check the SCSI terminators to be sure they are plugged in correctly. There can be no more than two terminators on the bus.

4. Make sure the SCSI cables you are using are OK, by swapping them with known good ones.

5. Swap the terminators in use with known good ones to be sure they are OK.

6. Try the drive and cable on a different Macintosh to be sure the Macintosh is OK.

THESE BOOTS ARE MADE FOR WOKKING

Your goal is to make your system as stable as possible. If things are acting strange, it doesn't hurt to go through the entire process of testing the drive. The test procedure takes a little time but is non-destructive for the data that is there. If something catastrophic has happened to the disk, it's better to spend some time backing up the data, initializing the volume, and restoring the data than it is to lose some work later on due to some permutation of the same problem. Unless you are sure that the volume is in an undamaged state, you are better off using a file-by-file backup operation than an image backup, since the image backup will copy any damage as well as the data.

If this article helps even one person save some data that would otherwise be lost, it will have been worthwhile. Hope it helps.

BO3B JOHNSON IS CURRENTLY WARPING REALITY FOR DEVELOPER TECHNICAL SUPPORT AT APPLE COMPUTER. HE IS THE PRIMARY AUTHOR OF *MACINTOSH TECHNICAL NOTE 134* FROM WHICH THIS MATERIAL IS TAKEN. APPLE HAS GIVEN *MACUSER* ITS PERMISSION TO USE THIS MATERIAL. 3REMEMBER THE 3 IS SILENT.

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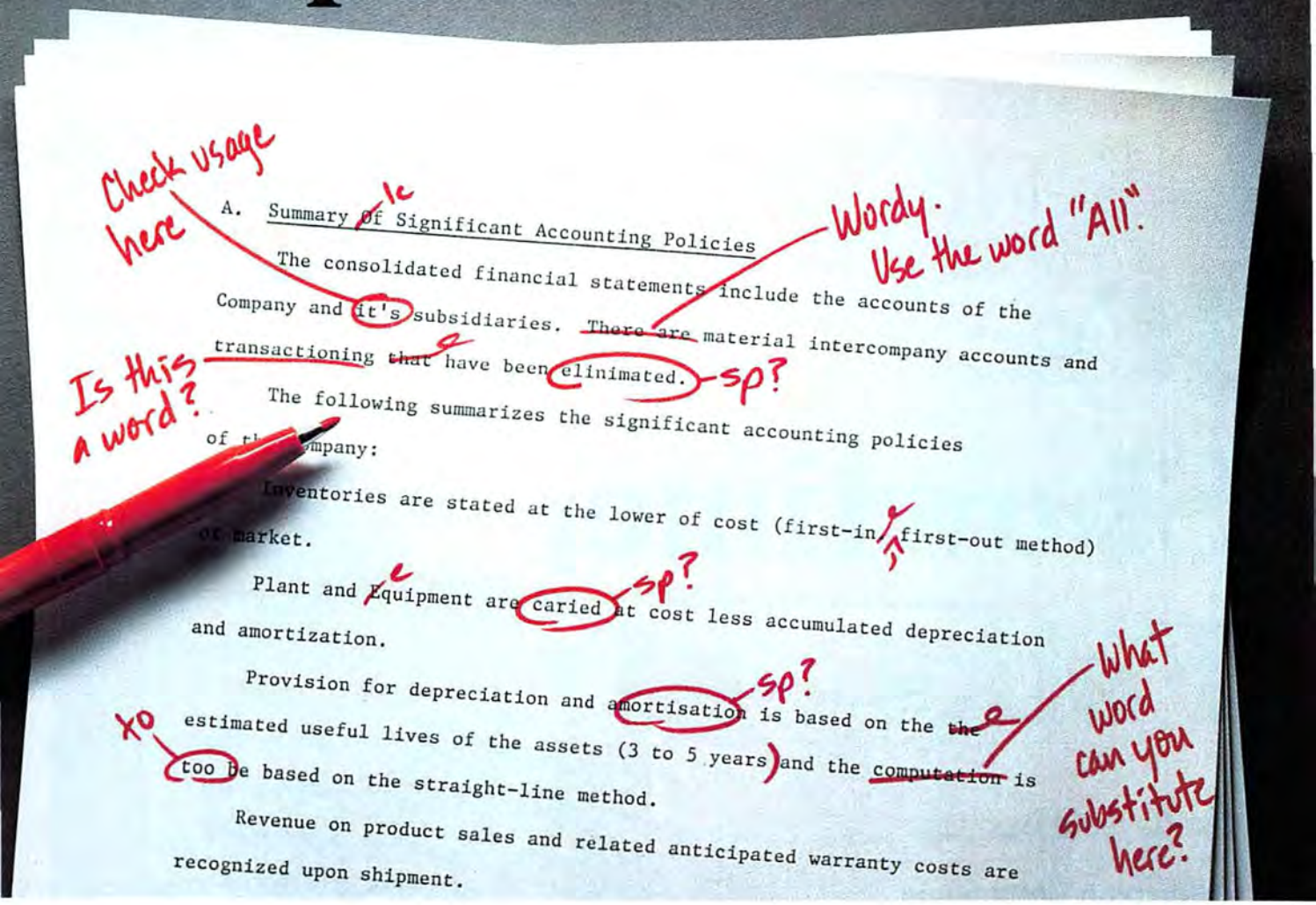
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It's Showtime, Folks

Our Seybold Desktop Publishing Conference report: new products, ideas, and potentials.



Interleaf, a high-end page layout program, can be bundled with the Mac II for a mere $10,900 or purchased without hardware for $2500.

BY
BEN TEMPLIN AND THE EDITORS OF MACUSER



E-Machines' Big Picture IQ Monitor for the Mac II displays up to 256 levels of gray.

SEPTEMBER 10-12, SANTA CLARA, California: On the heels of the Boston Macworld show, the Seybold Desktop Publishing Conference theme was — not surprisingly — focused on business. All of the corporate big shots — Kodak, Xerox, IBM — were there. But while nearly everyone had suits on, there was a big difference in style.

Before the show opened the first day, IBM's dark-suited and somber employees lined up in ranks to get their instructions. At the same time, over a couple of aisles at the Apple booth, a long-hair in tailored Italian threads explained to his female boss, "Oh wow, I guess I spaced it out." Despite whatever it was that was forgotten, Apple still shone over Big Blue. As always the Mac's cleaner interface and better graphics gave more utility to the task at hand.

Nearly every non-Macintosh typesetting system announced compatibility with Apple's computer. It wasn't that the established corporate world opened the door to Apple, rather Macintosh broke it down. Those not on the ball sheepishly backtracked and claimed a Mac-compatible product was under development.

By far the most significant corporate newcomer to the Mac market has to be *Interleaf*. *Interleaf* is one of the dominant players in the corporate typesetting arena. Institutions like GM, GE, Harvard, and the State Department, are major users. Now the all-in-one graphics, word processing, and page layout program is available on the Mac II. *Interleaf*'s highlights include global search routines for graphics elements and automatic page layout of books that are hundreds of pages long.

Interleaf has one very unfortunate and major drawback. While it superficially appears to have a Mac interface, it really doesn't. To use *Interleaf*, you're not only going to have to learn a new program, but a new interface. That's a bad trend we see continuing here.

Most of the smaller DTP operations at the show just scoffed at *Interleaf*'s $2495 price tag saying they could get along with *PageMaker*.

Aldus, fully aware of the potential business market, announced *PageMaker Portfolio: Designs for Business Communications*. This package contains 18 templates with predefined page formats for use with *PageMaker*.

PRESENTING A NEW STAR...

The real news of the show, though, was that the "P" in DTP doesn't just mean publishing anymore. Apple used the Seybold Conference to push desktop presentations. The success of presentation software like *Microsoft PowerPoint* and the Mac II's increasingly versatile color applications pump some life into that old reliable, the corporate slide show. Apple hopes to do for the still relatively new genre of desktop presentation what it did for desktop publishing.

The business of creating images for transfer to slides or transparen-

cies has spawned a number of new players, both hardware and software, in the Macintosh DTP arena. *Cricket Presents...* is another variation in the Cricket Software line of graphics software. The color drawing program's most important feature is device drivers. The drivers output to a number of non-Macintosh printers and film recorders, including the Hewlett-Packard PaintJet, a high-resolution color printer.

VideoWorks II, from MacroMind and marketed by Broderbund, is also being hawked as a DTP application. A feature called Overview acts as a sort of carousel for a slide projector. You can freely move slides around, then run the program with accompanying sound. *PixelPaint*, SuperMac Software's newest acquisition for the Mac II, is also trying to fit the presentation niche by acting as a colorizer for *PowerPoint* or *Excel* documents.

ColorLab, from Language Systems Corp., draws, colors, and presents slide shows on a computer monitor. Objects and text can be made transparent to "show-through" to another image. Another product in development is Business & Professional Software's *35mm Express*, a presentation package for IBM PCs that is being ported over to the Macintosh.

SHOOTING SLIDES

Photographing the screen was a snap at the show with two different 35mm slide processors. Matrix Instruments' SlideWriter stands about 2 feet high and uses its own software to record color images off the screen. It supports the PICT file format and retails at a high-end price of $11,795. The more reasonably priced Presentation Technologies' ImageMaker is $4995. This high-resolution slide maker is about the size of a LaserWriter and also accepts PICT images. Another slide processor for the Mac II, the Barneyscan, is in development.

If you can't afford the high-priced processors, a number of slide houses are now supporting Mac presentation software. CompuFilm disks store images, from applications such as *MacDraw* and *PowerPoint*, in a special format that can be transferred to slides when you mail in the disk.

Before the show opened the first day, IBM's dark-suited and somber employees lined up in ranks to get their instructions.

CompuFilm sends the processed slides back by Federal Express the same day they get them. CompuFilm for the Macintosh is expected to ship before the end of the year.

If the mail isn't quick enough, you can modem images created in *Cricket Presents...* to Autographix, which bills itself as an image service. Autographix will turn around 35mm slides, prints, or transparencies in 24 hours.

Another color slide processor available through modems is Management Graphics. Using their *Easy Slider* software, you "color" PICT graphics by matching the desired color with pen and fill patterns. The file is then formatted and sent over the modem to any of 50 processing centers in the U.S. A similar service is available with the *Carousel* package from 20/20 Data Systems.

TRANSPARENT MOVES

High-powered presentations were also being created with transparencies and overhead projectors. One outstanding way to generate transparencies was with the Tektronix 4693D Color Image Printer. It outputs 300 dpi prints and claims full reproduction of the Mac II's 16.7 million color palette. The printer comes with 4 megabytes of RAM and costs $8490 with a Mac II card and software. It was to ship in October.

If you're limited to a LaserWriter and still want transparencies, then a special film from James River Corp. makes generating them easier. The heat-stable Laser Transparency Film is smudge-resistant and has a paper-backing sheet to prevent jams.

To add color to those black and white transparencies, 3M showed its Desktop Imaging System and there was also a similar machine called the KroyKolor Processor. With either



Cornerstone Technology's Vista 1600 monitor for the Mac II displays a whopping high resolution of 1600 x 1280 pixels.

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It's Showtime, Folks



The ImageMaker from Presentation Technologies can process 35mm slides from the direct output of a Macintosh.

you just place a colored sheet of special glossy paper over the area you want colored and feed it through the machine. The devices replace a laser printer's black toner with whatever color (or colors) you use.

There was also a way to use an overhead projector without leaving the Mac. The Macnifier, from Comtrex Limited, acts as a sort of real-time transparency. The see-through Macnifier rests on an overhead projector and displays whatever is on the Mac screen. It's hooked up to a Mac through a special video port that is user-installable.

WEIGHING IN

Although it seemed like everyone was jumping on the desktop presentation bandwagon, the most spoken word around the show had to be "gray scale." Scanners, monitors, and software alike are starting to carry the moniker to note the beginning of true levels of gray. In the past, different levels of gray have been represented by a "dithered" pixel pattern, where alternating black and white pixels fool the eye into believing it is gray. Now, depending on the product, four, eight, sixteen, and lots more levels of gray can be achieved.

Abaton and Microtek showed gray level scanners. Both are flatbed types, so you can scan pictures in books or expensive artwork without worrying about bending the original. Both SuperMac and E-Machines had gray-scale monitors, with the latter taking honors for its 256 shades of gray and its design, which allows a Plus or SE to fit snugly behind it. This was the hardware hit of the show on the Mac side.

Although it seemed like everyone was jumping on the desktop presentation bandwagon, the most spoken word around the show had to be "gray scale."

But what nearly every scanner and monitor that claimed gray scale capability had in common was a piece of software called *ImageStudio*, which Letraset, its publisher, wisely spread around the show. This powerful program manipulates up to 64 levels of gray for photo retouching. It includes such tools as a water drop (for fading the level of gray) and customizable pens for special retouch jobs. Also supporting gray scale images is *PageMaker* 2.0a.

TYPE HYPE

While a lot of fanfare went to *Interleaf*, some important gains in typesetting with a Macintosh did not go unnoticed. Addison-Wesley started shipping *Textures for the Macintosh*, an implementation of the typesetting language *TeX*. *Textures* will appeal to users who publish scientific documents that have a number of charts and mathematical equations. Its macro-based command language allows complex footnotes and cross-referencing. A "preview" window can be on screen simultaneously with the document so you can see the results of your typesetting.

Another significant advance was the showing of SoftQuad's *Author/Editor*, a Macintosh word processor that conforms to the Standard Generalized Markup Language. SGML is a set of descriptive tags that can be translated into typesetting codes. (A chapter heading, for example, is denoted by the abbreviation chp.) SGML was adopted by the Department of Defense in 1983 to ensure uniformity in its publications and data bases. *Author/Editor*, with its expected ship date in late November, may open up some government contract work for freelance Macintosh typesetters.

If you've been disappointed with the measly three fonts that can be downloaded to a LaserWriter at one time, Mass Fonts, from Mass Micro, is a plug-in expansion card that allows 27 fonts at once. In other font news, Adobe is removing the copy protection from its fonts, but it's gouging users for $40 per font to get the upgrade, which consists of a new package for each font.

DELIVERING THE PAPER

The debate over PostScript as a standard for laser printers continued unabated. Most manufacturers have accepted PostScript as inevitable.

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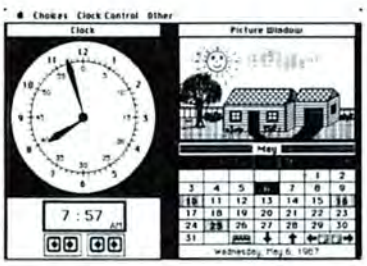
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It's Showtime, Folks

Kodak added a PostScript driver to its high-priced KEEPS typesetting system, and IBM has a PS board that is inserted in its O/S 2 line of personal computers. Others, like established typesetting services, are still hanging tough to older formats.

A new entry in the PostScript laser printer field is Printware's 720IQ Laser Imager. The printer delivers an outstanding 1200 x 600 dots per inch resolution and retails for a similarly large figure, $9990.

Also on the hardware side is a new face in Macintosh II monitors. Cornerstone Technology's Vista 1600 is a black and white monitor with a really high resolution of 1600 x 1280 pixels. The 19-inch unit goes for $2195.

What nearly every scanner and monitor that claimed gray scale capability had in common was a piece of software called ImageStudio.

GETTING IT OUT THE DOOR

Besides software and hardware, Seybold had all of the indirect products that even small DTP operations need. A special wax-resistant paper for laser printers was offered by James River Corp. Called Laser Ultra, it gives a higher contrast on camera-ready mechanicals.

For a real personal approach to publishing, there was a desktop binder. The VeloBind six-hole punch comes with plastic tabs that lock up to 45 pages in place for a tight fit.

There were even some independent type shops that specialize in serving small DTP operations. Most of these shops (which consist of some Macintoshes, a couple of LaserWriters and a Linotronic typesetting machine) are still clustered around urban areas. We wouldn't be surprised to see some entrepreneurial DTP outfit come up with a national directory listing them.

One product shown specifically for type shops was *LaserCount*, from LaserCount Systems. This product, which resides in a LaserWriter's RAM, keeps track of who is printing what and for how long. Users have to log on and log off of *LaserCount* in order to print. A receipt of their job can then be uploaded into a Mac for billing or tracking purposes.

New in the distribution phase was the catch phrase telepublishing. Instead of distributing hard copy of a newsletter or publication, you just modem the information to someone else's laser printer and let them use their own paper.

TEACH ME, TEACH ME

Training users in the intricacies of DTP has taken an upswing as more companies, large and small, turn toward the education niche. New on video is *On Becoming a Desktop Publisher...*, a 2-hour instructional tape from Ocean Communications that covers page layout, fonts, and using products like *PageMaker* and *Ready, Set, Go!* For the latter program, Letraset announced an intensive Design Workshop course for corporate customers. Personal Training Systems showed its newest teaching aid *LearnMORE*, for Living Videotext's presentation software, *MORE*.

Apple also announced the Apple Training Alliance, a group dedicated to teaching the ins and outs of DTP. One conspicuous absence for this effort was a *HyperCard* stack. It seems that not even Apple's own were let in on *HyperCard* in time to develop an educational aid.

If Seybold showed anything this year, it was that despite the corporate power of IBM, Xerox, and others, Apple still has the momentum of the innovator in DTP. During the closing seminar, a beleaguered managing editor for an juvenile publisher went so far as to lament his company's choice of IBM typesetting equipment to the crowd. "I feel like a covered wagon surrounded by Apple indians," he said. And how.



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FLASH CARDS

EDITED BY LAURA JOHNSON, VICTORIA JUAREZ AND JON ZILBER

A flood of *HyperCard* stacks has already been released on the Mac community. Some of the first to hit the streets (and bulletin boards) are illustrated below. They range from full-featured commercial applications to simple utilities. Many are shareware or freeware, and some are stacks-in-progress to which users are encouraged to contribute.

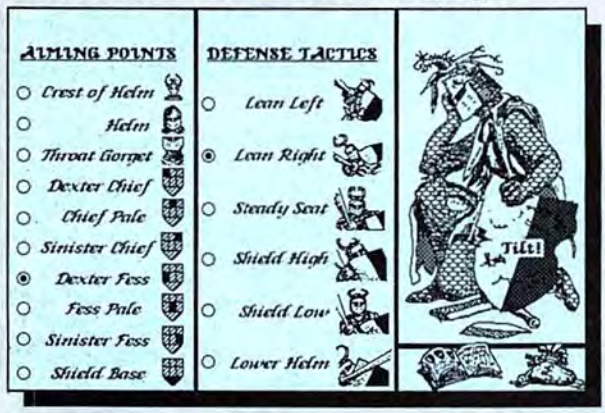
Just finding out what's been released is a major undertaking. We'll be reviewing the best of the stacks with our regular reviews. But in the meantime, we'll be presenting "Flash Cards" regularly so that you can see what's out there and how others are using *HyperCard*.

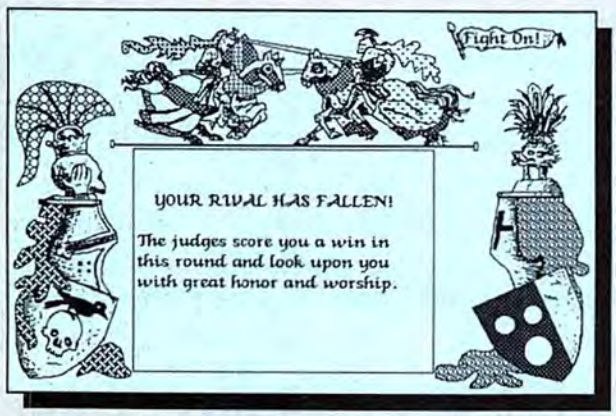
This section will be made up of screens (usually two from each) of stacks we've seen. It's too soon to rate these products and you should be careful trying them out. Some of the stacks have cards with no menus, and you may find yourself in *HyperCard* limbo. Fortunately, the Back command (Tilde/Escape/Down Arrow, depending on your system) will *usually* get you back to Home, eventually.

If you create a stack that you feel others will be interested in, send it to Flash Cards, c/o *MacUser*, Suite 250, 110 Marsh Drive, Foster City, CA 94404. We can't promise to show your stack and we can't return your disk unless you enclose a stamped, self-addressed envelope.

We'd also like to hear about what you want to read about *HyperCard*? Hype? Scripts? Programming projects?

Raise Your Shield and Charge





Tilt is a medieval strategy game stack filled with period detail. You must select offensive and defensive jousting tactics to defend your (and your lady's) honor. *Tilt* is shareware, available from Neil Shapiro and Mike Gilbert, MCU Inc., PO Box 520, Bethpage, NY 11714.

Can We Talk?





James Paul's demo stack provides a "talk" command for *HyperCard*. The command allows you to vary the rate and pitch (but not the mode and sex) of the voice. Contact the author on CompuServe (72767,3436) or at Paul Software Engineering, 513 West "A" Street, Tehachapi, CA 93561.

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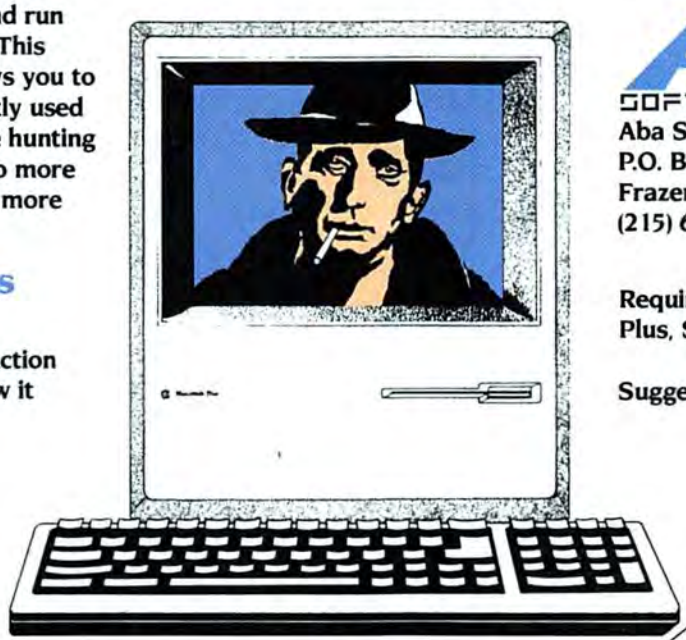
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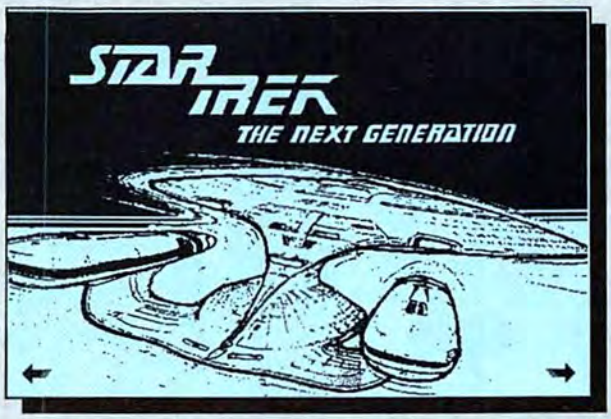
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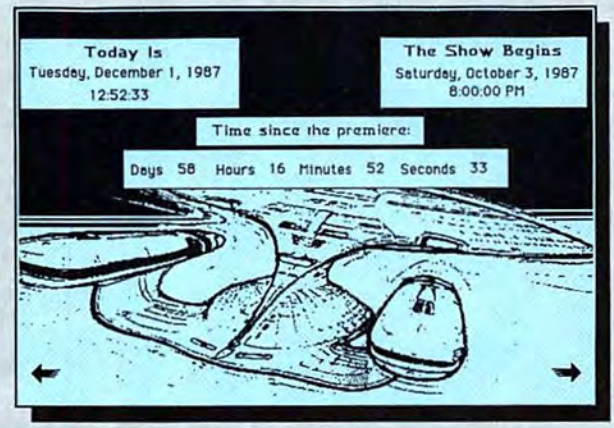
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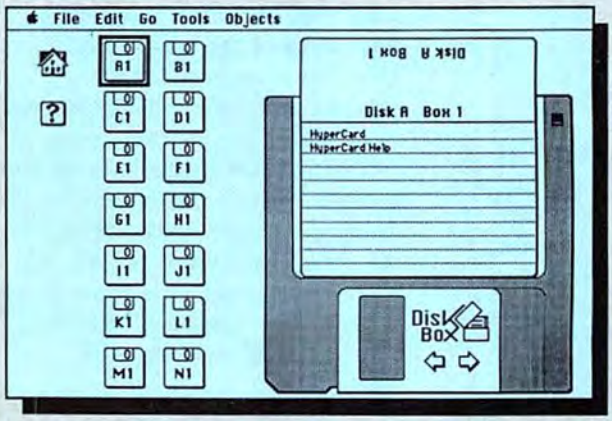
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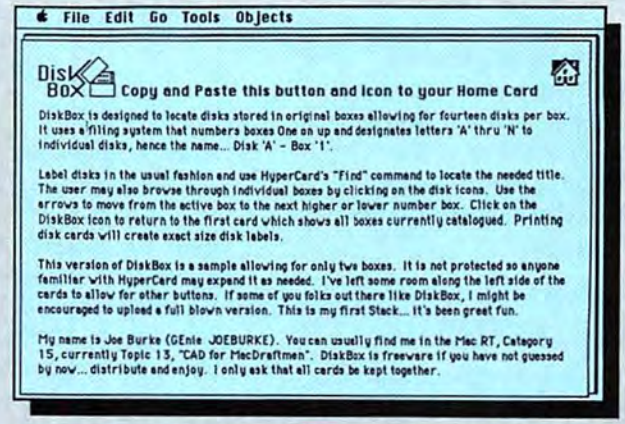




Ric Bretschneider created this stack which counted down the seconds remaining until the premiere of *Star Trek, The Next Generation* (and which now tells us how far along we are in the post-premiere era). The stack also includes background information about the series' characters and cast members. Contact Ric via CompuServe (75136,221).

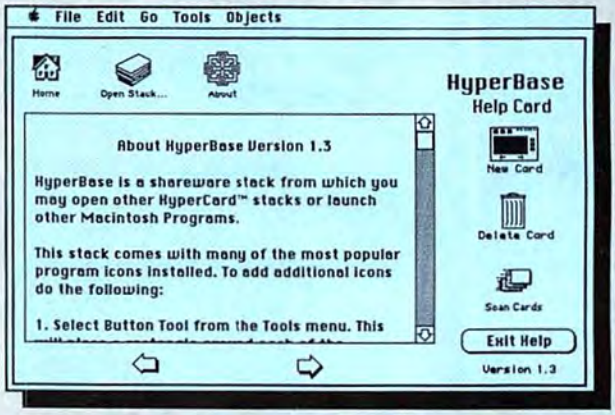
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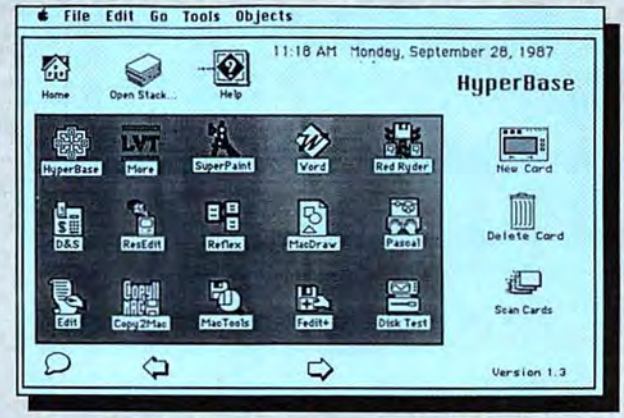




No one knows why, but thousands of Mac users are unable to separate the label backing from the label and transfer said label to the diskette without making a mess of things. If you suffer from this all-too-common malady — or if you have too many files on your disks to fit all the names on a label — Joe Burke's freeware *DiskBox* stack is your answer (contact JOEBURKE on GEnie).

There's No Place Like Home/Desktop





HyperBase lets you merge the program icons on your desktop with the stack buttons on your *HyperCard* Home screen, letting you launch non-*HyperCard* programs without quitting *HyperCard*. Icons for several popular programs come pre-installed on the *HyperBase* Desktop/Home, and additional icons can be added as *HyperCard* buttons. Contact Henry Lowe, 58 Waverly St., Belmont, MA 02178.



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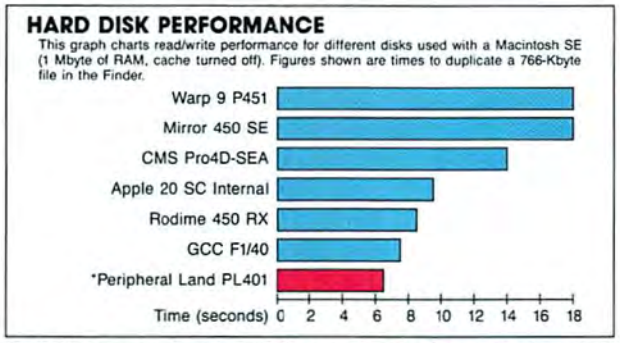
MACWORLD: "The Peripheral Land Drive is the hot rod of the group, a good choice if you need top performance right away."

MacUser: "Peripheral Land's hard disk drives are ranked #1 in speed, reliability, storage capacities and aesthetics."

MacWEEK produced this chart demonstrating how Peripheral Land beat out every other manufacturer:

HARD DISK PERFORMANCE

This graph charts read/write performance for different disks used with a Macintosh SE (1 Mbyte of RAM, cache turned off). Figures shown are times to duplicate a 766-Kbyte file in the Finder.



*The PL40i has been replaced by the PL50i since publication. The new drive is even faster!

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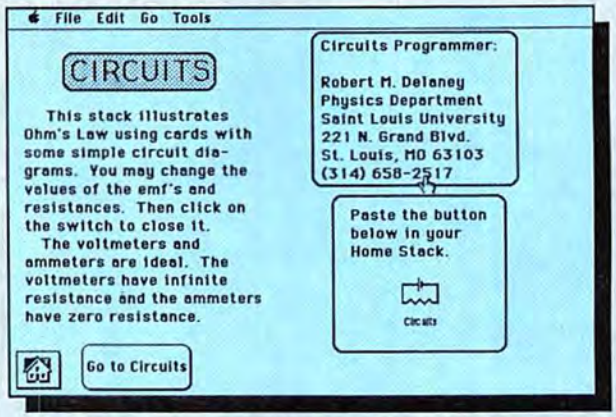
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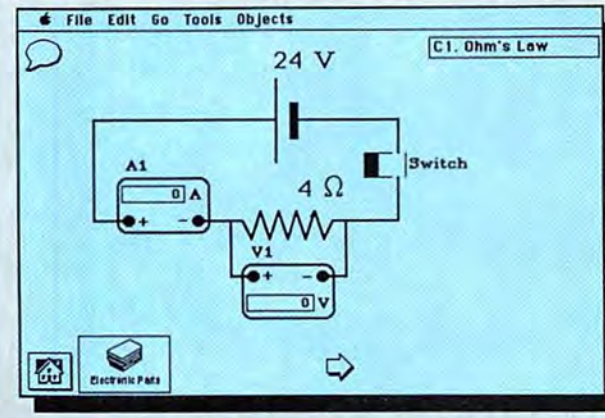
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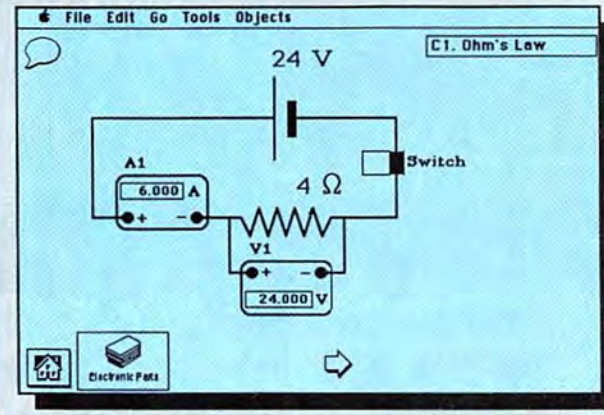
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Ohmygosh, it's Ohm's Law



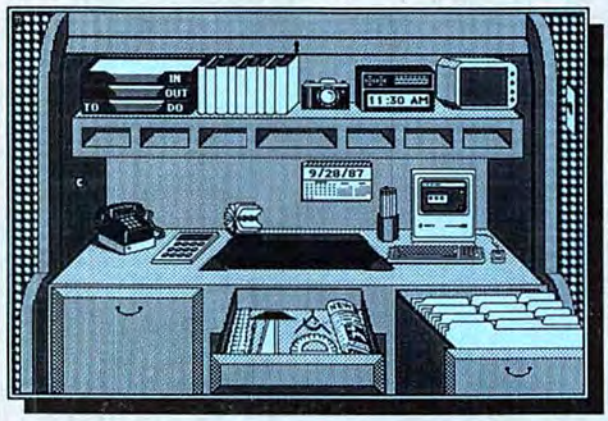




Electrical properties (such as Ohm's Law) are demonstrated in Robert Delaney's *Circuits* stack. When you hit the switch button to open or close a circuit, the meters show the changes in voltages and currents. (Physics Dept., Saint Louis University, 221 North Grand Blvd., St. Louis, MO 63103.)

Roll Out the Rolltop





HomeDesk provides an artsy *HyperCard* alternative to the standard desktop. Clicking objects on the desk launches programs and utilities. For example, clicking the radio opens *MusicWorks*, click a pencil to get into *Word*, a newspaper to launch *PageMaker*. Some are self-evident — clicking the calculator gets you a calculator, others are subtle (look for the hidden safe!), and some are just for fun (everybody needs a panic button now and then). Contact Russell A. Lyon of Public Domain Software on CompuServe (71735,632).

HyperGiggles with HyperComics



Version 1.6 of *The Comic Strip Factory* (see review this issue) lets users create panel strips compatible with *HyperCard* card sizes. Stacked panels imported from *MacPaint* become animated HyperComics. From Foundation Publishing, 10301 Yellow Circle Drive, Minneapolis, MN 55343.

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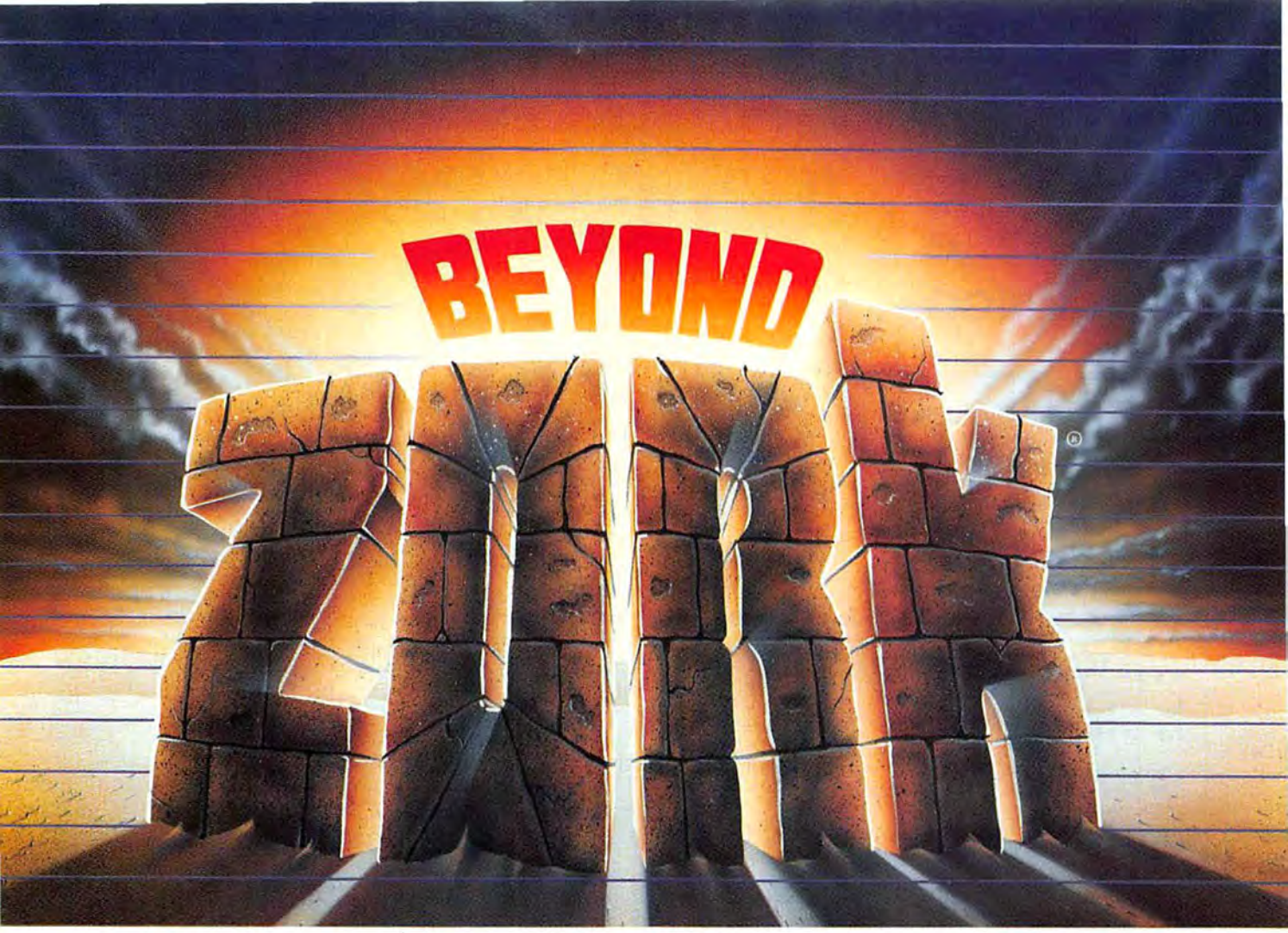
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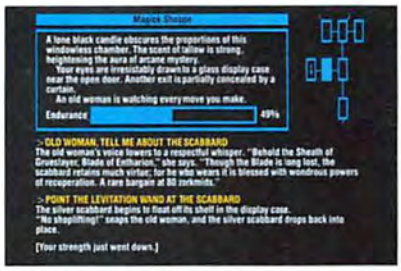
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Beyond Zork *is available at your local dealer for the Apple II series, Macintosh, Commodore 128, Amiga, IBM PC and 100% compatibles, and Atari ST. To order direct, call 1-800-262-6868. Coming soon: Apple IIGS.*

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Screen shown is for the Commodore 128 version.



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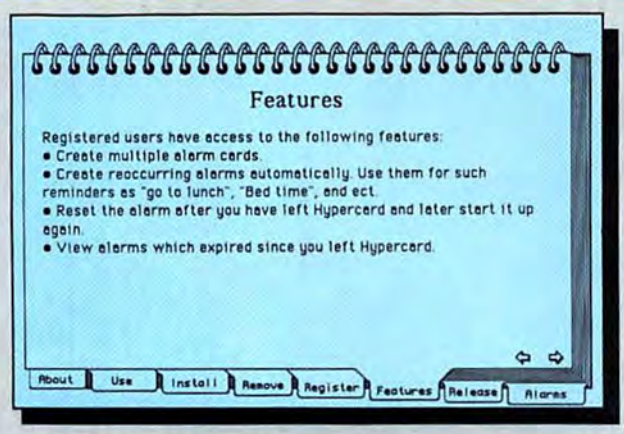
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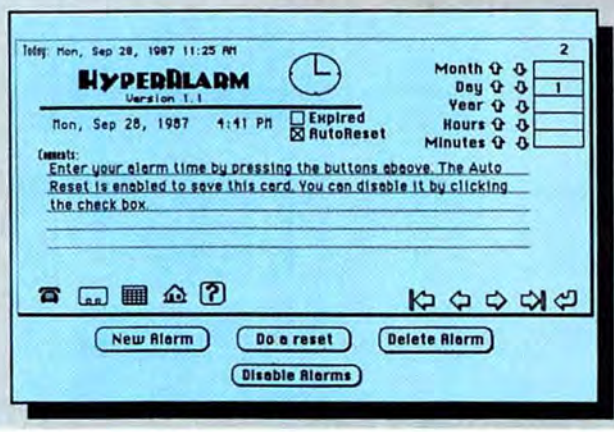
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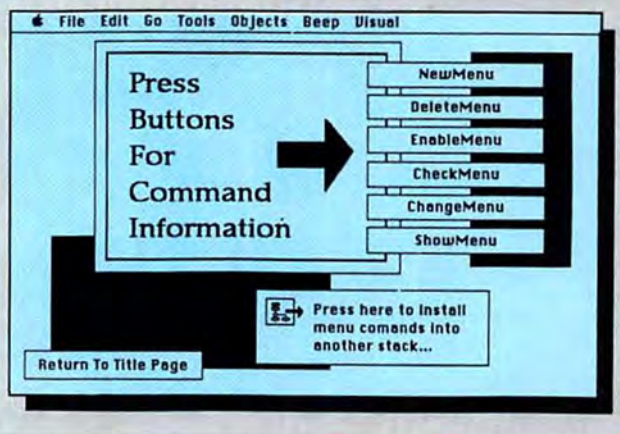




HyperAlarm lets you leave reminders for regular events you might otherwise forget (like going to sleep, waking up, etc.) as well as one-time happenings (appointments, getting married, etc.). The stack also keeps track of alarms that expired after you exited *HyperCard*. From Poor Mans Software (3620 Little Chief Court, North Highlands, CA 95660, (916) 332-9224).

Menus for HyperCard





This stack from Michael Long (P.O. Box 915, Greenwood, IN 46142, 317-887-2154) lets you add traditional pulldown menus to *HyperCard* stacks. You can add as many as 8 menus with up to 15 items on each menu to each card. "Nine to Five," explains the help screen, "is both a piece of software and the name of a company (but not a dessert topping)."



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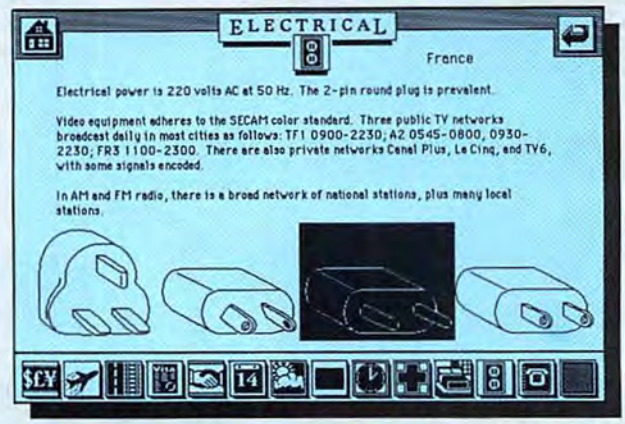
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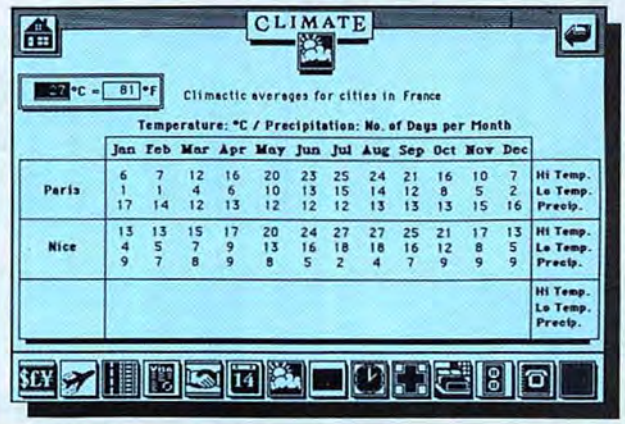
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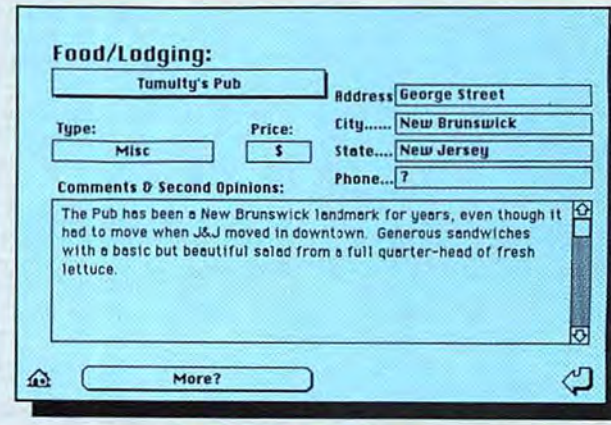
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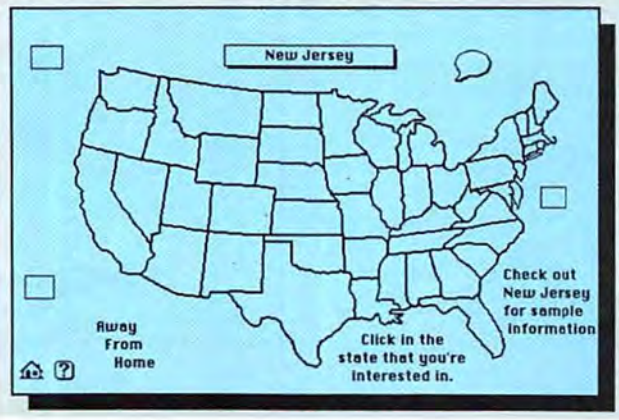




Not real DAs, but an incredible simulation. *Business Class* makes travel planning easy, with information on foreign currency, transportation, customs, time zones, electrical standards, medical practices, weather, etc. The concept is by Danny Goodman, with art from David Smith. (From Activision, PO Box 7286, Mountain View, CA 94039).

Put Away From Home On Your Home





Away From Home USA puts food, lodging and entertainment information about any domestic destination at your fingertips. Pick your spot on the map and let your Mac do the walking. Author Frank Patrick (721 E. Brookshire Lane, Somerville, NJ 08876) invites you to add and share your travel finds in this "participative shareware" stack.

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InfoWorld

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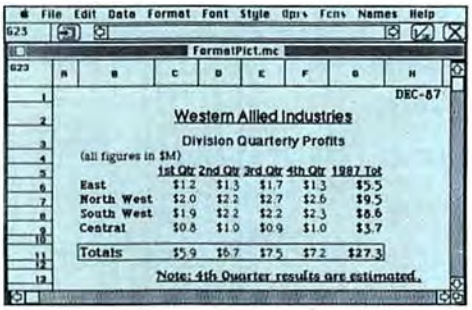
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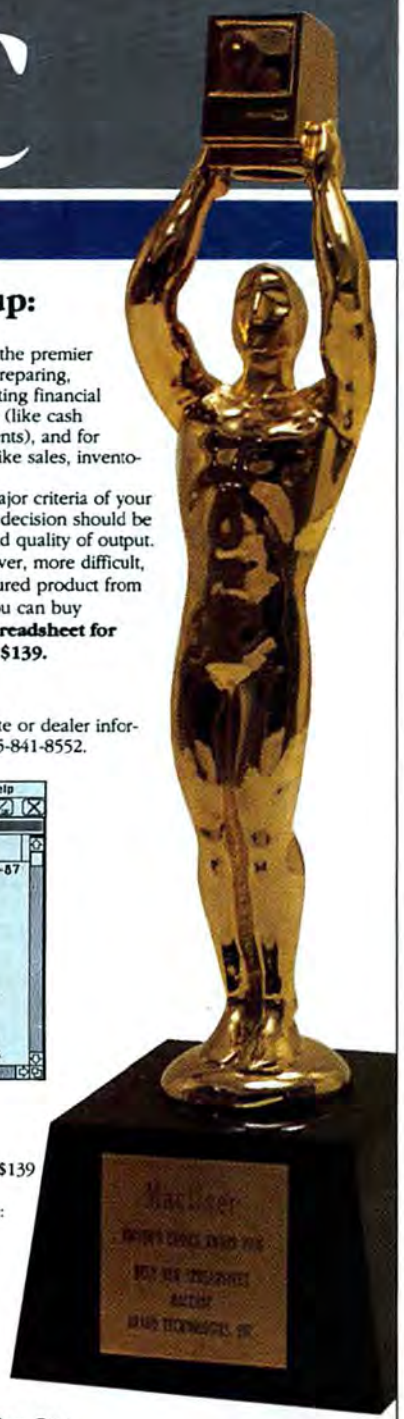
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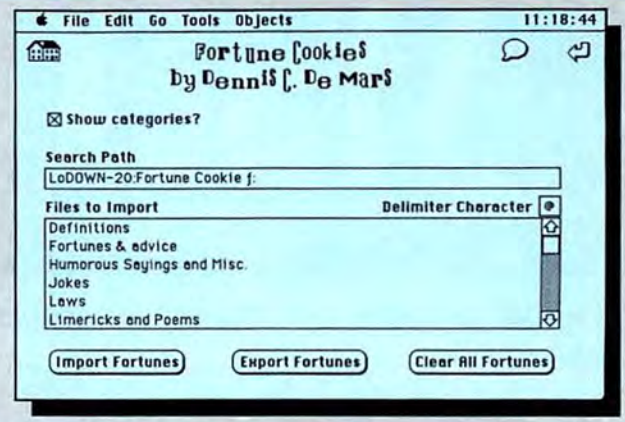
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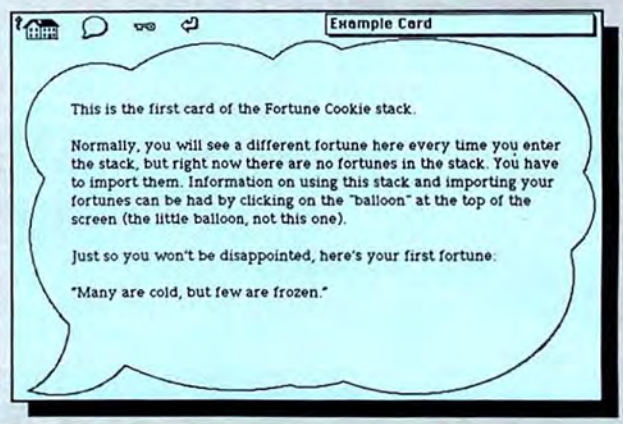
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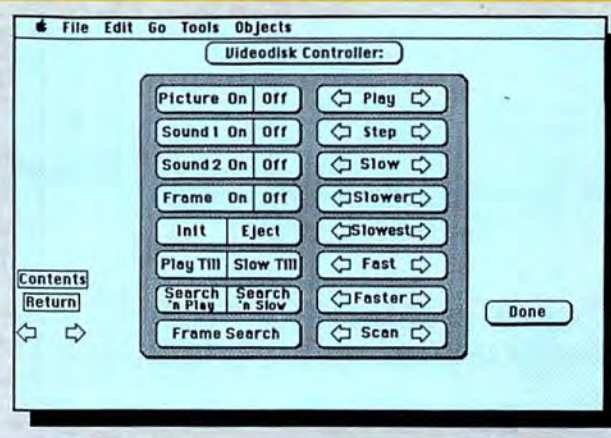
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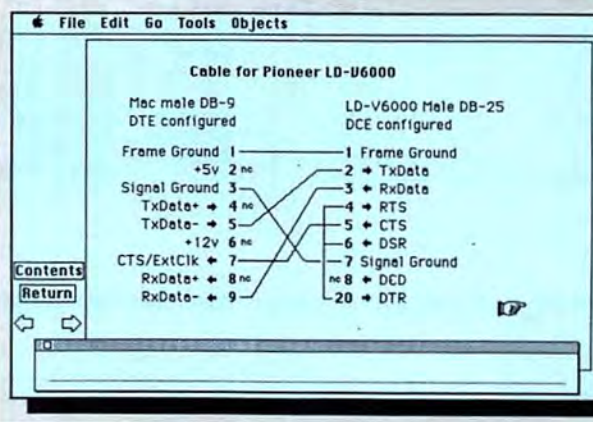




Nine hundred fortunes and wise sayings come with this stack which lets you start (or finish) your day with a moment of reflection. Such as: "A drug is a substance which, when injected into a rat, will produce a scientific report." With lines like that, is it any surprise that author Dennis C. DeMars left no address on his stack?

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Videodisc Controller provides a *HyperCard* interface for developers working on video applications for the Mac. The stack includes a control panel interface as well as reference information and wiring diagrams for various players. The stack comes from Ted Kaehler and Fabrice Florin, with input from Dan Winkler. Contact Apple Developer Support.



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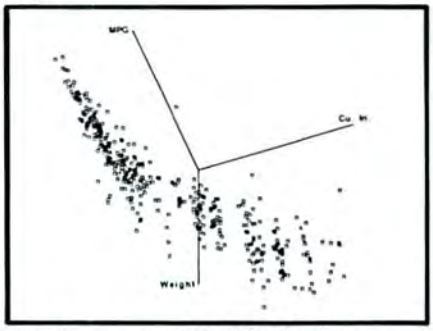


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amc rebel sst	16	8	304	150	3433	12	1971
ford torino	17	8	302	140	3449	11	1971
ford galaxie 50	15	8	429	198	4341	10	1971
chevrolet impal	14	8	454	220	4354	9	1971
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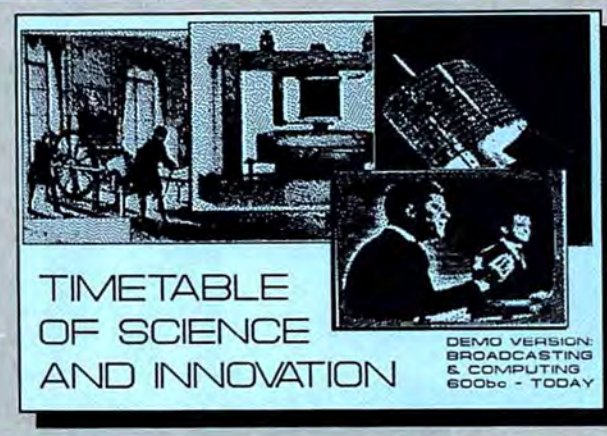
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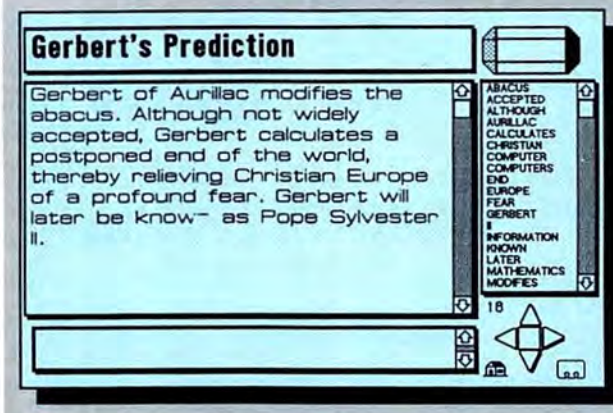
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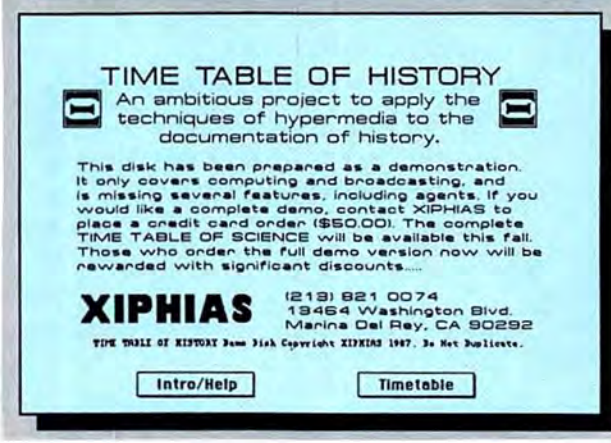
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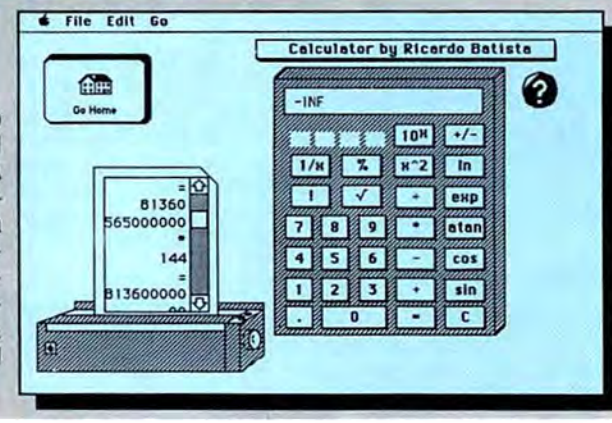




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Numbers Game

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BrainPower, Inc.

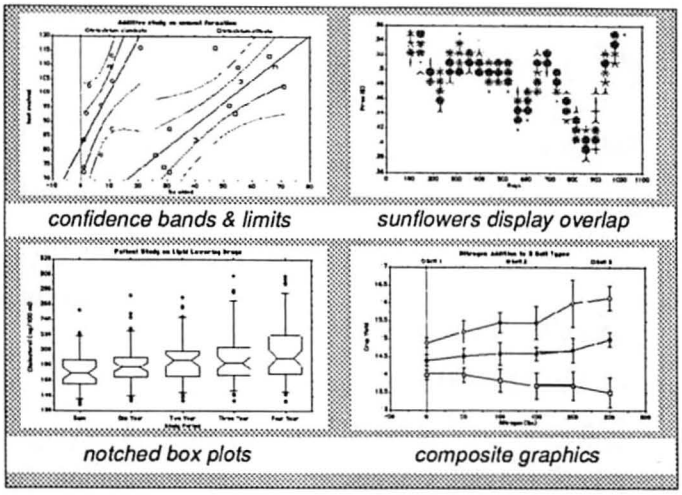
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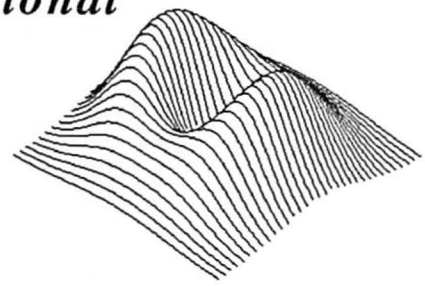


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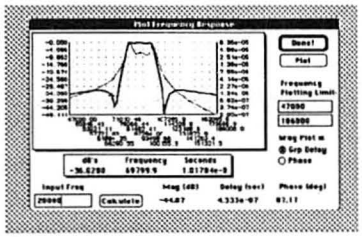
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MathView *Professional*™ is a powerful, stand–alone mathematics package that handles a wide range of mathematical problems in the following areas: function evaluation; solving systems of linear and non-linear equations; 2 and 3 dimensional plotting of functions; matrix operations; Fast Fourier transformations; numerical integration; real and complex root finders; constrained and unconstrained optimization; statistics; series operations; partial and ordinary differential equations *and much more!*

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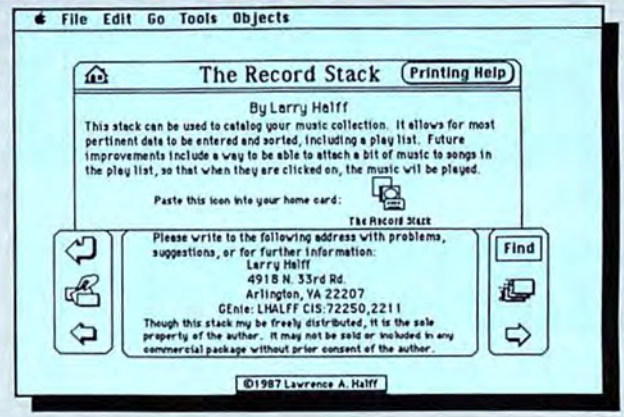
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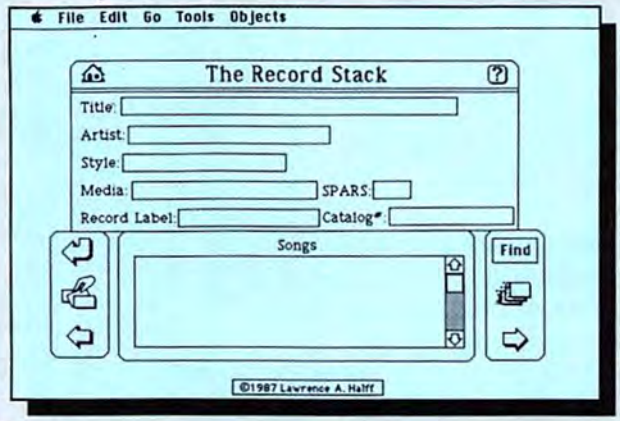
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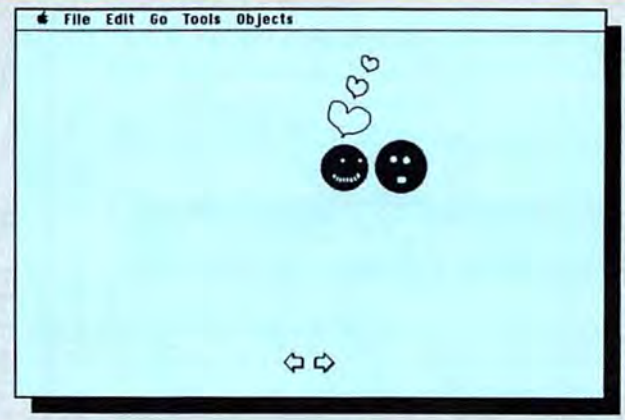
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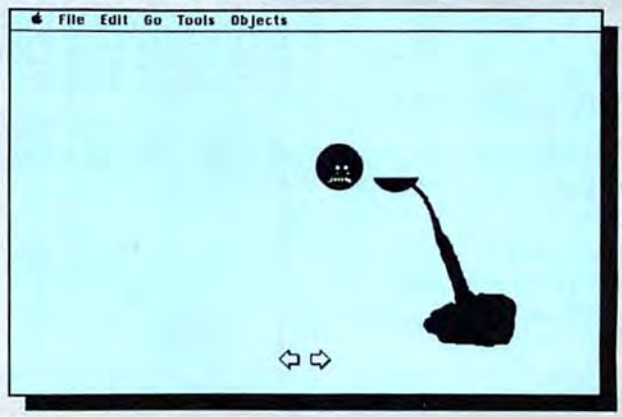




The Record Stack is a Rolodex customized for your music collection. A scrolling window lets you list any number of songs for each record, tape or CD in your collection. A future version will let you store a snippet of music with each card. Contact Larry Halff, 4918 N. 33rd Road, Arlington, VA 22207, GEnie: LHALFF, CIS: 72250,2211.

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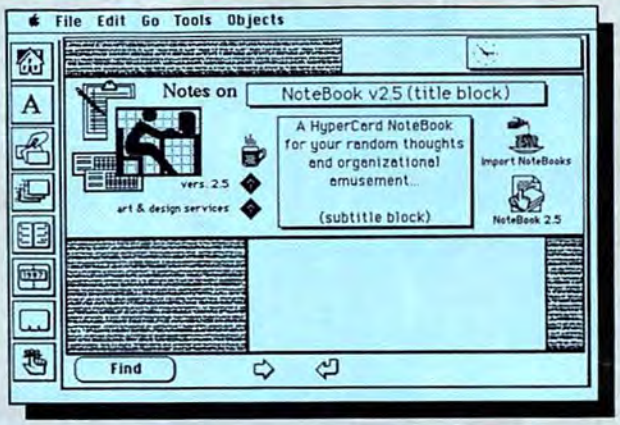
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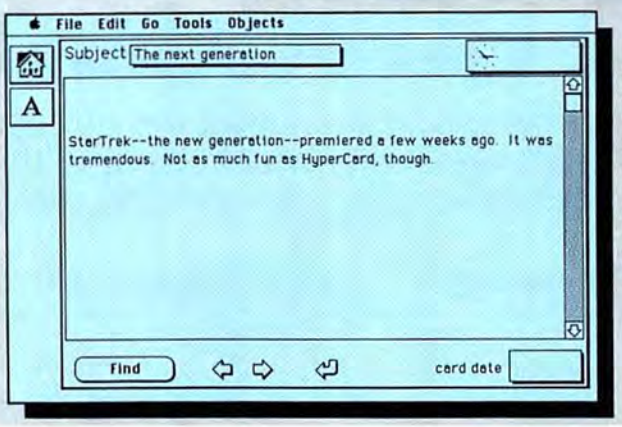
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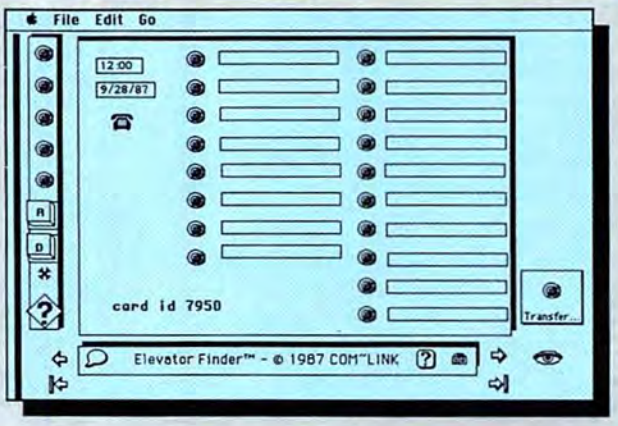
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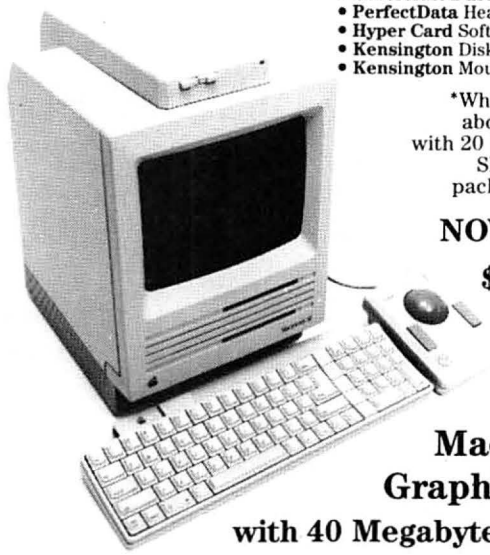
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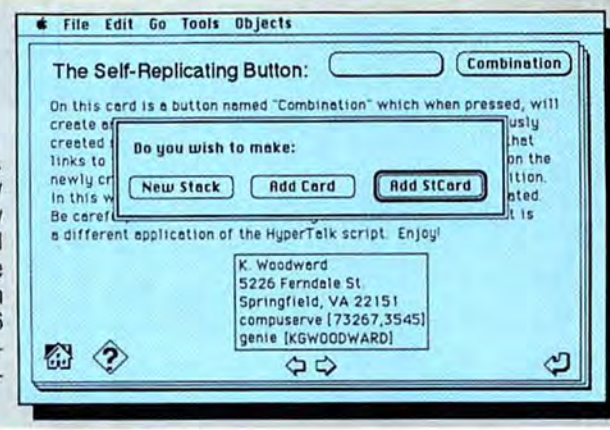
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The Self-Replicating Button

...does what it says. This stack creates a new button to link you to a new card or new stack, and makes it easy to repeat the process indefinitely. From Ken Woodward, 5226 Ferndale Street, Springfield, VA 22151 (CompuServe 73267,3545).



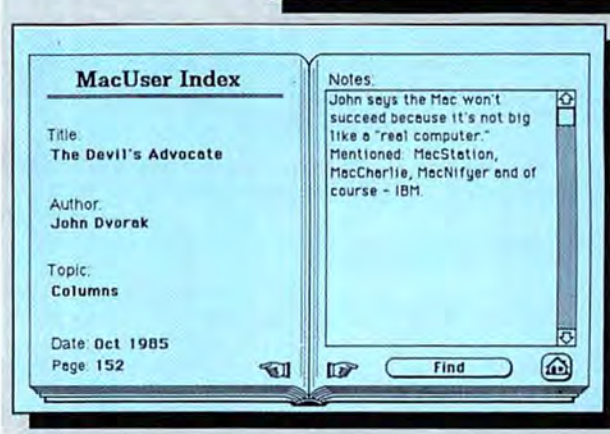
Blow Up Your Mac

...or anything else. *Proportion Wheel* 2.0 helps graphic artists scale photos or artwork up or down to size. Enter the original dimensions and one of your space constraints and it provides the remaining values. From André Hinds, Fanques, Box 3271, Tulsa, OK 74101.



Table of Contents (and Discontents)





MacUser Index is another example of how a little customizing effort can go a long way. It's another variation on the Rolodex theme, tailored to the requirements of a magazine index. (Available on national electronic services.)

TIP SHEET

COMPILED BY H.D. PLANT

Found a trick, shortcut or a smarter way to get something done with a program? Share your hints by sending them to The Tip Sheet, c/o *MacUser*, 110 Marsh Drive, Suite 250, Foster City, CA 94404. We pay at least $25 for every hint we publish, plus we'll print your name and hometown.

FULLPAINT

Here's a handy tip not found in the *FullPaint* documentation. If you press the COMMAND, OPTION, and T keys at the same time only the Patterns palette disappears. The Tools palette remains. This can be very useful if you constantly switch tools, but never change the selected pattern. The extra space is nice to have. To get the Patterns palette back, simply press COMMAND-OPTION-T again.

MIKE PINKERTON
RESTON, VA

RED RYDER 10.0

Here's how to convert your old *Red Ryder* 9.4 procedures into *Red Ryder* 10.0 procedures — a detail that was unfortunately left out of the new manual.

1. Go back to *Red Ryder* 9.4 for a last time. While there use the option in the Service menu to convert all of your procedures to TEXT files. Save each of them (use a DA word processor like *miniWriter* to make this easier).

2. Some of the procedure commands have been changed (for the better), so you have to edit the text files a bit. The new commands are documented on pages 72 to 82 of the *new* manual. For example, String Variables are now A$, B$, etc. and Numeric Variables are A%, B%, etc. And Label definitions for JUMPTO are different so you have to add ":" before the labels.

3. One super new ability of *Red Ryder* 10.0 is the ability to syntax check procedures before they're compiled. Do that now on your text files. Select CHECK PROCEDURE FOR SYNTAX ... for each file. This step is very fast.

4. Finally select COMPILE TEXT FILE TO PROCEDURE ... from the Service menu for each text file. The program adds a .PROC to the name of the file it creates so that you can tell the procedure file from the text file. That's important to know when setting up your new macros.

RICHARD M. KRISS
AUSTIN, TX

PRINTER MUFFLER

Kensington's Printer Muffler is a real value in the overpriced computer accessories market. However, the first sheet printed off an ImageWriter II usually curls upwards since it retains the curvature of the paper guides. When it does this, it hits the plastic cover and jams. You can avoid the problem by advancing a sheet manually, right before you print, but that's a pain.

My solution was to cut a piece of foam from the Printer Muffler's packing material into a wedge shape. I then used double-stick tape to fasten it to the cover. This redirects the paper properly.

The other Muffler problem is that the paper exit opening is too low, with the result that the ImageWriter II tries to force the paper path upward above the exit. The wedge shown not only fixes the jamming on the cover, but also aims the paper through the exit slot. You still need to leave one sheet "up," when you start printing. Do this by selecting FORM FEED on the ImageWriter after your document is completed, and then tear off your finished document *outside* the casing.

PAUL R. CONNELL
PRINCETON, MA

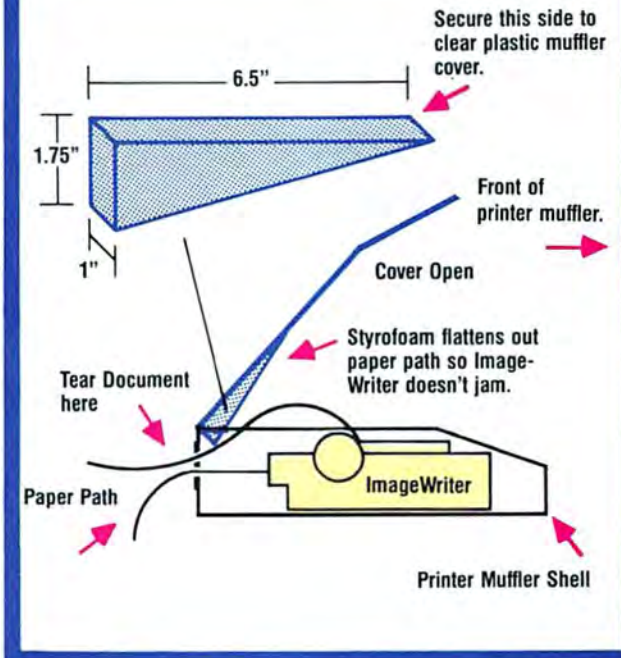
LASERWRITER

If you regularly use two kinds of letter-size paper in your LaserWriter (for example, letterhead and regular paper), it's a good idea to get a second paper tray to avoid taking paper out and putting the other paper in constantly. However, don't get a legal size tray, on the theory that it'd be handy to have both tray sizes.

You'll discover your pages print misaligned. That's because the LaserWriter doesn't check to see what kind of paper is in the tray, but, instead, checks to see which size tray is inserted!

PAUL C. VILANDRÉ
MENLO PARK, CA

PRINTER MUFFLER



Cut a wedge-shaped piece of foam from the packing material and tape or glue (double-stick tape works well) it to the underside of the clear plastic cover as shown. This fixes two of the Printer Muffler's problems that occur when an ImageWriter II is used. The first sheet will no longer jam under the cover, and the paper will feed out the exit slot correctly. Remember to tear off your printouts outside the casing, not at the printer.

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KEY CAPS DA

My Mac is nearly 4 years old and twice recently suffered partial keyboard failures. Two of the keys just stopped functioning. If you're in the middle of a letter or document and something similar happens to you, simply go to the *Key Caps* DA. Click the mouse on the inoperative key and that letter, number, or symbol will be shown in the text area at the top of the DA. Simply copy it from there and paste it where needed.

Another option, which works in any program that has a global search and replace feature is to use a symbol that you ordinarily don't use in place of whatever the keyboard won't produce throughout the document. When you're done, use the Change command under the Search menu to have the program substitute the correct letter (or whatever) for the symbol. Paste the correct letter from the *Key Caps* DA straight to the Change To area of the Change dialog.

GIL WALKER
COUNTRYSIDE, IL

HYPERCARD

If you have ever tried to paste a text file from a DA like *miniWriter* or *MockWrite* into *HyperCard* (in what seems like a perfectly natural way to bring in previously written text), you've discovered that you have to close the DA after copying the material from it, before *HyperCard* will allow you to paste.

Rather than spending all your time opening and closing DAs, launch *Switcher*, and open *HyperCard* from within *Switcher*. Open your text handling DA on the *Switcher* screen. Now you can switch back and forth between the DA and *HyperCard*, easily cutting and pasting.

This works on Mac Pluses and SEs with as little as 1 megabyte of memory, as long as you don't try to open any other applications with *Switcher*.

BRUCE LONG
TEMPE, AZ

If you want to return to the Finder rather than to *HyperCard* when quitting applications or documents launched from *HyperCard*, hold down the Option key while quitting.

BILL JASTRAM
TUALATIN, OR

Often when creating a new stack you'll want to use the same buttons on different cards, with different backgrounds. If you save these buttons in the Scrapbook, you lose all identifying information, and can easily forget which button is which.

The solution is to create a "ScrapCard" on which to save these buttons. First, add a new card at the end of the stack. Paste any button you intend to use again onto this card. Now all you need to do is press COMMAND-4 to get to the ScrapCard (be sure to leave it as the last card in the stack), choose and copy the appropriate button, press COMMAND-~ to return to the card you were working on, and paste the button in.

NORMAN S. GUADAGNO
HOUSTON, TX

The *HyperCard User Manual* falls somewhat short of explaining all of *HyperCard*. For a more complete description of the program's functions and capabilities, select HELP from the Home Card and then select PRINT STACK from the FIle menu.

Printing in the quarter-size mode will give you eight cards on a standard 8½- by 11-inch sheet. You'll wind up with a 52-page reference copy of the Help stack, which will include details of the *HyperTalk* programming language. That material is only available in a printed form from APDA (Apple Programmers' and Developers' Association) or Danny Goodman's *The Complete HyperCard Handbook*.

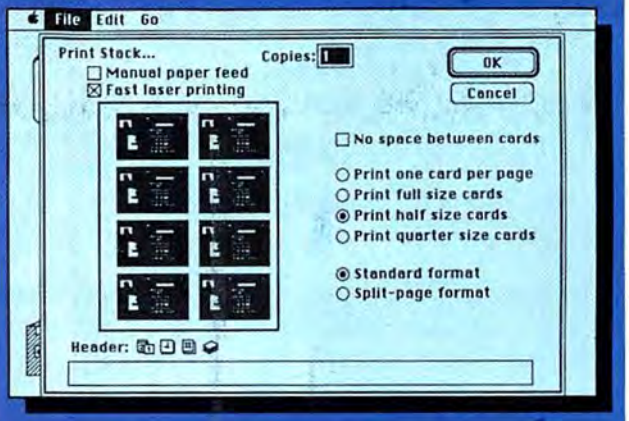
JAMES P. PATTERSON
LARGO, FL

FULLPAINT



If you need more room on the screen, but are changing tools frequently, removing both the Tools and the Patterns palettes is not efficient. If you don't need to change patterns often, get rid of the Patterns palette by pressing OPTION-COMMAND-T. You can toggle the patterns back with the same key combination.

HYPERCARD



To supplement the somewhat anemic manual that comes with *HyperCard*, print out its excellent and extensive Help stack. The best way to do this is to select PRINT STACK... and select the mode shown, which results in eight cards appearing on each page. Prepare yourself for a 52-page printout.

hammer HARD DRIVES

WHEN HIGH-PERFORMANCE JUST ISN'T GOOD ENOUGH

One of the most abused adjectives in the hard disk drive industry is "high-performance." It seems as if all hard disks, whether the drives deserve it or not, are associated with this term. In light of this situation, the makers of Hard Disk Util™and Hard Disk Partition™ present hard drives deserving a more precise adjective: the first "true high-performance" drives, the hammer™drives.

True high-performance. Why do the Hammer drives qualify as "true high-performance" drives? Hammer drives can deliver average access times of 16.5 milliseconds compared to 26 ms for Apple's HD80sc™and 40ms for SuperMac's DataFrame XP60™. To illustrate the difference in performance, the hammer300™, for example, scores a DiskTimer II benchmark read time of 22; a RAM disk yields a time of 17, the HD80sc a time of 43, and the DataFrame XP60 a time of 50.* But any hard drive should deliver much more than just true high-perforamce.

High capacity. As applications and their concomitant data files become more sophisticated they become increasing large. How large? Apple's new innovative HyperCard™requires 3.2 megabytes of storage; 4th Dimension™, 3 megs; VideoWorks II™with demos, 6 megs; a single full-screen color picture, 1.2 megs; a single full-screen 300dpi scanned image, 1 meg; Apple's A/UX™will require a minimum of 40 megs. In order to meet these storage reguirements, the Hammer drives come in three high-capactiy models: the hammer91™Macintosh II™internal, the hammer155™Macintosh external, and the hammer300 external.

Reliability. But high-performance and high capactiy do not mean anything if the storage device is unreliable. All Hammer drives are rated at 40,000 MTBF hours. This specification translates into a service life 60% longer than that of Apple's HD80sc, 100% longer than that of a DataFrame XP60. All Hammer drives also automatically park and lock their heads onto dedicated landing areas on power-down, preventing head crashes and eliminating the need to run head parking utilities on shutdown.

Attention to detail. Many of the details designed into the Hammer drives are as important as their main features. Each of our drives, for instance, recognizes whether it is connected to a Macintosh Plus, SE, or II; and automatically adapts data transfer rates accordingly. Not only does this maximize the performance possible on each computer, but this feature also allows full compatibility and interchangability across all three of these computers at 1:1 interleaving.

Software package. With every Hammer comes a full utility software complement to help you maintain the long-term effectiveness of the drive. We include back-up software, crash recovery software, unfragmenting software, partitoning software with password capabilities, and software to upload protected programs onto the Hammer drive.

Complete storage solution. In essence, the Hammer drive series represent one of the most complete, cost-effective storage solutions available for Macintosh. So when "high-performance" just isn't good enough, you know where to look.



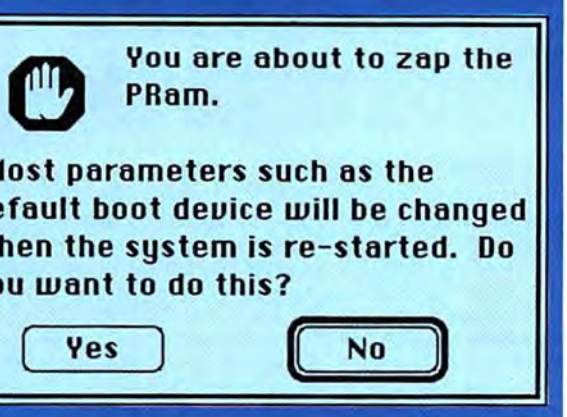
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*All Disktimer II times were run on a Macintosh II.

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PARAMETER RAM



To reset the parameter RAM on Mac II or SE, hold down the Shift, Option, and Command keys as you open the *Control Panel*. When the dialog shown appears, select YES, and then close everything and Restart your Mac. Everything but the time setting in the PRAM will have been cleared.

PARAMETER RAM

The parameter RAM (PRAM) is where the Mac stores basic information like the time and default font (and lots of other things) that it must know when you start it up. It's powered by the battery. And occasionally it gets fouled up and must be reset.

On Macs and Mac Pluses resetting the PRAM is simple. Just shut the machine off and remove the battery for 5 or 10 minutes. It's impossible to do that on the SE or the II, however. But Apple has provided another way to reset the PRAM. You must be using *Control Panel* 3.1 (or higher). Version 3.1 is included with *System* 4.1 and *Finder* 5.5.

Here's what to do: As you select the *Control Panel* hold down the Shift, Option, and Command keys. You'll get a dialog box asking if you want to zap (reset) the parameter RAM. Select YES, and then RESTART your Mac. This will set most of the PRAM to zero, but will not reset the clock. Reset all your other options as they were or as you wish.

JAN VAN ARKEL
ROSMALEN, THE NETHERLANDS

EXCEL

You can print column or row headings on each page of an *Excel* spreadsheet, using the Set Print Titles choice on the Options menu. However, the titles print twice on the page where they should appear. (If, for example, you select the top two rows as titles, they will appear twice at the top of the first page.)

To prevent that, select the entire worksheet, *except* the designated titles, and then select SET PRINT AREA (also on the Options menu). The titles will print only once on each page, and will be exactly where they should be.

DAVE DRYDEN
BARTLESVILLE, OK

To make a large spreadsheet fit on a single page (for presentation and to make photocopying easier), increase the font size to 16 point for the whole sheet. Then print using 50% reduction. If the size is still too big you can increase the font size further and use an even greater reduction. Use the Preview Print function to see if your results fit on a single sheet.

ROBERT J. MONTGOMERY
SEPULVEDA, CA

Here's a faster and easier way to insert rows and columns. Mouse to the edge of the sheet where you want to insert the rows or columns and hold down the Option key as you click the mouse.

BARRY J. LUTZ
CHICAGO, IL

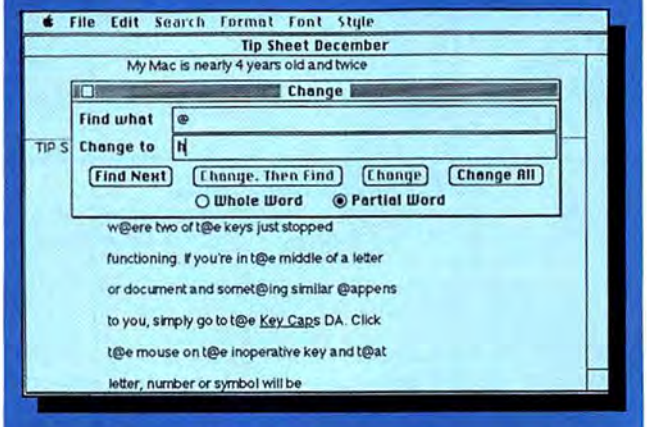
SUPERPAINT

If you need laser printed screen dumps at smaller than actual size, *SuperPaint* is the perfect tool. First, using *SuperPaint*, open the *MacPaint* file containing the dump (remember that Command-Shift-3 saves the current screen to the desktop as a *MacPaint* file) and clean it up or modify it as you wish. Then select either all of it or the region you want to print and choose COPY TO DRAWING (Command E) from the Edit menu. To scale your dump, now use the Scale Selection command (make sure you do this in the Draw layer). For a LaserWriter use a multiple of 24%: 24%, 48%, 72%, or 96%, depending on the final size required.

The image won't look too good on the screen, but will print very nicely. *SuperPaint*'s Draw layer can also be used to put captions that will print in laser-quality fonts under screen dumps.

KEVIN SHAY
WATERTOWN, MA

KEYCAPS DA



If a key on your keyboard fails in the middle of an important paper or memo you can continue by typing a rarely used symbol in place of the broken key. Then, when you're finished, open the *Key Caps* DA, bring the letter the broken key represents to the display area (by clicking on it in *Key Caps*) and then copying it. Then go to your Search and Change facility (*MacWrite*'s Change command is illustrated, most others are similar). Paste your letter in the Change To box and type the symbol you've used in the Find What box. Select PARTIAL WORD (or the search won't work), and Change All.

MINIFINDERS



Have you often wished for a personal assistant to help in picking software? These MiniFinders may not breathe and move, but they do tell you what products are hot and, better, what these products do. Each of these items has been carefully reviewed and selected by the *MacUser* editorial staff. Each has been rated in increments of half mice, from 1 to 5. Ratings are relative within categories, and they can change as categories expand and new products advance the state of the art. You won't see many low ratings or bombs, since we're telling you about the cream of the crop, but we will warn you about the really bad products so that you don't spend your money on them. Red names indicate this month's additions. The letters at the end of the entries indicate whether a product is copy protected (CP) or not (NCP). If a product has been reviewed or Quick Clicked in *MacUser*, the date of the review is shown. Next time you have to find products you can count on, count on *MacUser*!

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INTEGRATED SOFTWARE

Crunch is an icon-driven relational spreadsheet that features versatile charting and data base capabilities. Strong financial logic, date and mathematical functions. Spreadsheets can be linked. The manual is clear and concisely written. Macros are not supported. $195. VisiCorp, 2700 Augustine Dr., Santa Clara, CA 95054. CP (Jan 86)

Excel is THE power spreadsheet. Of the Mac, of the world. Has 256-column by 16,384-row capability. Features include a powerful macro function (with a recorder to make creation simple) and elaborate charting facilities. 512K+ Mac and external drive required. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Prem)

Jazz provides well-integrated modules for word processing, graphs, worksheets, data bases and communications. HotView is best feature. Requires 512K+ and external drive. Version 1A requires 400K drive. $395. Lotus, 55 Cambridge Parkway, Cambridge, MA 02142. CP (Prem)

Microsoft Works is an integrated application that includes word processing, data base, spreadsheet and telecommunications functions. The telecommunications module includes background up- and downloading. $295. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Oct 86)

Quartet is an integrated program that works on a 128K Mac, built around a powerful spreadsheet with a full range of functions. It can also be used as a data base and provides good quality charts from spreadsheet data. Documentation is adequate, but not too well organized. $49.95. Haba Systems, 6711 Valjean Ave., Van Nuys, CA 91406. CP (Jul 86)

BUSINESS ACCOUNTING

Accountant, Inc. V2.0 integrates accounts payable, accounts receivable, general ledger and inventory modules. Prints checks, purchase orders, invoices, customized reports. Bare bones accounting system limited in size and scope, but ease of use and integration make it suitable for small businesses. Requires 512K+. $299. SoftSync, 162 Madison Ave., New York, NY 10016. NCP (Oct 87)

Back to Basics Accounting is a powerful double-entry accounting software package for the small business user with GL, AR and AP modules. Exhaustive manual with numerous examples. Report capabilities are excellent. $199. Peachtree, 4355 Shackleford Rd., Norcross, GA 30093. NCP (May 87)

BPI General Accounting is an easy to use system. Six journals, AR, AP, Payroll and GL on one disk. Offset amounts automatically post to ledgers. Up to 8000 accounts. Detailed records, wide range of reports. *Switcher* and HFS compatible. $249. Requires 512K+. BPI Systems, 3001 Bee Cave Rd., Austin, TX 78746. NCP (Aug 86)

CheckMark is a Ledger with five preset journals: Cash Disbursements, Receipts, General, Sales and Purchases. Menus and data entry are very straightforward. Flexible summary reports are built in; customer and vendor info is very minimal. $295. CheckMark Software, PO Box 860, Fort Collins, CO 80522. CP (Dec 85)

Insight is a high-powered accounting program for the small to medium size business. At present, three modules are available: Accounts Receivable, Payables and General Ledger; others are in the works. Requires 512K and hard disk. $595. Layered, 85 Merrimac St., Boston, MA 02114. NCP (Dec 86)

Rags to Riches integrated accounting modules (General Ledger and Accounts Receivable) uses Mac interface to the hilt. Information entered in one window automatically transfers. Version 3.0 now provides detailed, flexible report options. Very easy to use, but it can be confusing with several windows on-screen. Requires 512K+ and printer. $199.95 per module. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Dec 85)

Rags to Riches Professional Billing tracks and bills professional services. Batches activities for individual timekeepers. Use as standalone, or integrate with *R to R* modules. Requires 512K+, printer. $399.95. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Feb 87)

Strictly Business General Ledger features clear, well-outlined set up procedures and operations. Very flexible, up to 99 profit centers with up to 100 departments each; and customized reports. Program print spools. Requires 512K+, printer and external drive. $395. Future Design, 13681 Williamette Dr., Westminster, CA 92683. NCP (Dec 85)

PERSONAL FINANCE

Dollars & Sense is a bookkeeping program. Easy to use, with a good manual and excellent on-screen help. Will handle up to 120 separate accounts or money categories. Uses standard double-entry accounting techniques. Will work on 128K. $149.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP (Mar 87)

MacInTax is an excellent tool for preparing tax forms. Intuitive, easy to use. Accepts data from leading personal finance programs. Good built-in help. Liberal upgrade policy for current owners. California forms set also available. $99 federal; $45 California. SoftView, 4820 Adohr Lane, Suite F, Camarillo, CA 93010. NCP (Mar 87)

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P.O. Box 52461
Boulder, Colorado 80321-2461



MacMoney is a complete and easy to use personal financial system. ★★★★½ Intuitive data entry. Integrates with *MacInTax*. Requires 512K+. $74.95. Survivor Software, 11222 La Cienega Blvd., Inglewood, CA 90304. NCP (May 87)

Market Pro is a comprehensive portfolio management program for the ★★★★ generation of fundamental data as well as technical charts and graphs. Requires 512K+, external drive and Hayes-compatible modem. $395. Pro Plus Software, 2830 E. Brown Rd., Mesa, AZ 85203. NCP (Nov 86)

DATA BASES

Business Filevision is a masterpiece of Macintosh programming, the ★★★★ only true graphic data base on any micro. Much more powerful than the original, accepts *MacPaint* graphics. $395. Telos Software, 3420 Ocean Park Blvd., Santa Monica, CA 90405. NCP (Feb 86)

C.A.T. is a dedicated relational data base for managing contacts, activi- ★★★½ ties and time. Difficult to learn, but easy to use. Its rigid structure takes some getting used to, but links between types of data make it easy to keep track of important people and events. $299.95. Chang Laboratories, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Nov 87)

Double Helix is an environment to generate custom applications built ★★★★ around a data base-type framework. Contains enhancements to *Helix* 2.0. Includes custom menus, sub form windows, password protection and a universal dump and load parser. Ability to store pictures as data fields. $495. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP (Oct 86)

File is a flexible data manager. Creates files for a variety of data, includ- ★★★★ ing simple graphics. Files are created in simple row/column format, but reports and forms are easily customized. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP

FileMaker Plus retains features of *FileMaker* and reads *FileMaker* data, ★★★★★ also displays up to 8 files, uses "lookup" to retrieve data from other files. Enhanced calculation with many additional functions. Scripts automate a sequence of actions. Requires 512K+. $295. Nashoba Systems, Inc., 175 Sudbury Rd., Concord, MA 01742. NCP (Nov 86)

4th Dimension is a powerful relational data base that creates stand- ★★★★½ alone applications. Features a Pascal-like programming language environment. Somewhat slow. $695. Acius, 20300 Stevens Creek Blvd., Cupertino, CA 95014. NCP (Nov 87)

Helix is a relational data base that makes extensive use of icons. Setup ★★★★ is easy due to adherence to the Mac interface. The manual is clear, thorough and well-indexed. Complicated for simple data base applications, excellent where relational power is needed. Requires 512K+ and external drive. $395. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP (Mar 86)

MacDewey! (version 2.5) is a cataloging program featuring the Dewey ★★★ Decimal Classification system. Uses predefined fill-in-the-blank fields to create catalog cards. Suffers from bugs in search routines and the inability to distinguish first names. Not for professionals; home libraries might benefit. $79.95. Mousetrap Software, 336 Coleman Dr., Monroeville, PA 15146. NCP (Nov 87)

MacRelax is a relational list manager that stores data in a column ★★ format. Files can be related by sharing a common field. Flexible design for reports. Screen display is sometimes strange. Easy to use but not obvious to learn. $59.95. 512K required. Arrays, 6711 Valjean Ave., Van Nuys, CA 91406. NCP (Jan 87)

Omnis 3 is a power data base, featuring concurrent multiple file man- ★★★★ agement. Can handle 24 files, 12 at a time, and is fully relational. Create custom environments including user-defined menus, commands and dialogs. $495. Blyth, 2929 Campus Dr., San Mateo, CA 94403. NCP (Mar 86)

OverVUE is a power-packed relational data base that has extensive ★★★★½ sorting, summarizing and report generation capacity. Has macros and a charting function. Good manual. It can exchange files with a very wide variety of other programs (including IBM software). $295. ProVUE, 222 22nd St., Huntington Beach, CA 92648. NCP (Nov 85)

Professional Bibliographic System is a specialized data base for ★★★★ storing and retrieving bibliographies. Redesigned templates (20) simplify creation. Version 2.6 offers improved speed, flexible formatting. $295. Personal Bibliographic Software, Box 4250, Ann Arbor, MI 48106. CP (Feb 87)

Record Holder is a flexible, easy-to-use form-oriented data manager. ★★★ Setup is particularly simple and the search features are powerful. $69.95. Software Discoveries, 137 Krawski Dr., South Windsor, CT 06074 NCP (Apr 86)

Reflex For The Mac is a flexible relational data base. Excellent report ★★★★½ generator gives full control over appearance, style of output. Requires 512K+, second drive or hard disk. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 86)

Writer's Workshop maintains orderly records for writers. It can track ★★★½ manuscripts, income and publisher. Based on and includes *Runtime Helix*. $99.95. Futuresoft System Designs, PO Box 132, New York, NY 10012. NCP (Apr 87)

NUMBER CRUNCHING

DesignScope is a construction kit for digital and analog circuits. Up to ★★★★ 254 components can be utilized in a single circuit, and the equivalent of a dual trace oscilloscope plots output in real-time. Good for testing circuitry without touching a breadboard. $249.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Nov 86)

MacCalc is a fast, competent, full-featured spreadsheet with impres- ★★★★ sive built-in functions, font control, on-line help, ability to expand columns and rows and read/write SYLK or WKS files. The worksheet is 125 columns by 999 rows. Cell names, printing power make *MacCalc* a very flexible pure spreadsheet. $139. Bravo Technologies, c/o DPAS, PO Box T, Gilroy, CA 95021. NCP (Sep 86)

MacSpin is a unique and powerful graphic data analysis program. Han- ★★★★ dles multivariate data in a highly visual manner. Nothing else like it for any micro. $199.95. D2 Software, PO Box 9546, Austin, TX 78766-9546. CP (Jun 86)

Mindsight is a professional level decision support and business plan- ★★★★ ning package. Can work with IFPS on mainframes, and is able to transmit models in both directions. Powerful and easy to use. Requires 512K+. $249. Execucom Systems, PO Box 9758, Austin, TX 78766. CP (Dec 86)

Multiplan, the first Mac product from someone other than Apple, is ★★★½ beginning to show age. Still a very capable basic spreadsheet with simple sorting, 63 columns by 255 rows, many built-in functions, other standard spreadsheet features. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Mar 86)

Parameter Manager is a data manager, incorporating integrated ★★★★ scheduling, statistics and graphics. It has solid spreadsheet, calendar and data base functions, and reports can be customized using other software. *Parameter Manager* can also import data from *Excel* or *Lotus 1-2-3*. $495. SMS, 651 River Oaks Parkway, San Jose, CA 95134. NCP (Jul 87)

StatView 512+ is a very intuitive statistical analysis program with ★★★★★ tools needed to understand any set of data. Holds data in a spreadsheet-like form. Full-featured, fast and accurate. Extremely wide range of analyses possible. Requires a minimum of 512K of RAM & 800K of disk space to operate. $349.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Dec 86)

StatWorks is a general-purpose statistics package that is both power- ★★★★ ful and easy to use. Handles all standard tests and procedures. Single variable and multivariate statistics are supported. $125. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (May 86)

Trapeze (version 2.0) is a powerful presentation worksheet that com- ★★★★½ bines mathematical functions and graphic representation. The interface, which consists of an icon bar, can be awkward to use. Mac II and color supported. Data Tailor, 1300 S. University Dr., Fort Worth, TX 76107. NCP (Dec 87)

MINIFINDERS



GRAPHICS & DESIGN

CalendarMaker creates monthly calendars in a variety of formats. Users can incorporate their art and daily notes. Note files can be imported from a variety of DA calendars and outliners. Shareware and prelicensed versions available. $30. CE Software, 801 73rd St., Des Moines, IA 50312. NCP (Dec 86)

Chart can easily create area, bar, column, line, pie, scatter and combination charts. A total of 42 styles are provided. Limited to 100 data items (64 in a series) on a 128K Mac, approximately twice that on a 512K Mac. $125. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP

ClickArt Special Effects is a *MacPaint* enhancement desk accessory. Allows the user to distort, stretch, rotate and use perspective on *MacPaint* documents. A necessary addition for all serious users of *MacPaint*. $49.95. T/Maker, 1973 Landings Dr., Mountain View, CA 94043. NCP (Apr 86)

ColorPrint allows you to print *FullPaint, MacPaint, MacDraw* and *MacDraft* documents in color using the ImageWriter II or ImageWriter I. *Paint* files set up as overlays are read into *ColorPrint*, and the program controls proper positioning registration. $29.95. I/O Design, PO Box 156, Exton, PA 19241. NCP (Mar 86)

Comic Strip Factory is an assembly program for creating comic strips. Includes a data base of parts for various characters and backgrounds for panels. Good text editing in balloons. Can import and export in *MacPaint* format. $89.95. Foundation Publishing, 10301 Yellow Circle Dr., Minneapolis, MN 55343. NCP (Dec 87)

Cricket Draw is an object-oriented drawing program that will produce stunning, high-quality output. Designed to print on PostScript-compatible devices, such as the LaserWriter. Making shadows and flowing fountain effects are just a point and click away. $295. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (May 87)

Cricket Graph easily generates 12 graph types. Multiple windows can be displayed. *Graph* prints in up to 8 colors with up to 16 patterns. Self-generating macro formatting. *Switcher*, HFS, LaserWriter and plotter compatible. $195. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (Jun 86)

Easy3D is a three-dimensional, solid modeling masterpiece. Four variable light sources, powerful sculpting tools and an exquisite user interface make this a must-have for graphics enthusiasts. Requires 512K+. $149. Enabling Technologies, 600 S. Dearborn, Chicago, IL 60605. NCP (May 86)

EZ Draft is a high-level CAD application. Does things usually only found on minicomputer programs. Uses "pop-up" menus to supplement a full set of pull-down menus. Comes with an additional set of printer/plotter/monitor drivers. A real powerhouse. $1995. $500 for IEGS module to link to other CAD programs. Bridgeport Machines, 500 Lindley St., Bridgeport, CT 06606. CP (May 87)

FastForms! Construction Kit is both a fast and efficient business forms creator (a drawing program) and a specialized application (and DA) to fill out the data fields in your forms. $89. New Directions, 2915 19th St., NE, Calgary, Alberta. NCP (Nov 87)

Fluent Fonts is a two-disk collection of fonts. Forty-nine different items are included. All install easily in user systems. Most are well executed and some are extraordinarily nice. This is a real bargain for font lovers. $49.95. CasadyWare, PO Box 223779, Carmel, CA 93922. NCP

Fontastic is the best font editor now available for the Mac. Features a large editing window with a grid to make positioning easy. Select letters to edit by clicking on a matrix of the font. Allows scaling of existing fonts and previewing the various styles. $49.95. Altsys, PO Box 865410, Plano, TX 75086. NCP (Dec 85)

Fontographer is a complex, but excellent laser font creator. The fonts created have 300 bits per inch resolution. The fonts are actually downloadable PostScript files. $395. Altsys, PO Box 865410, Plano, TX 75086. CP

FullPaint is an expanded version of *MacPaint*. Features include full-screen drawing, multiple documents opening simultaneously, brush editing, movable tool palettes, special text effects and much more. It fills the gaps left by *MacPaint*. $99.95. Ann Arbor Softworks, 2393 Teller Rd., Newbury Park, CA 91320. NCP (Jun 86)

GraphicWorks 1.1 is a powerful drawing and painting program that creates high-resolution bit-maps. Easels contain graphics, balloons hold text and both reside on panels. Graphic primitives are now a separate tool. $99.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. NCP (Oct 87)

Graphidex indexes *MacPaint* and *MacDraw* format graphics without removing them from their original documents. Indexed graphics are retrieved via the *Graphidex* DA. Can modify an indexed graphic without affecting the original. Best for bit-mapped (*Paint* format) images but the design is questionable and the execution imperfect. Requires 512K. $124.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (May 87)

GridMaker is a tool for artists who use perspective. The program automatically generates a series of three-dimensional plane sets that can be pasted into *MacDraw*. Sizes and viewing vantage point are easily modified. $49. FolkStone Design, Inc., PO Box

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MINIFINDERS



86982, North Vancouver, BC V7L 4P6, Canada. NCP (Nov 86)

Illustrator is a professional-level graphics program. Unique and powerful drawing technique. Program uses templates for precise and detailed art work. Requires 512K+. $495. Adobe Systems, 1870 Embarcadero Rd., Palo Alto, CA 94303. CP until registered. (Jul 87)

Japanese Clip Art is a two-disk set of extraordinary Japanese clip art. Consists of *MacPaint* documents and separate fonts. Volume I, Heaven, covers mythological subjects; Volume II, Earth, has secular subject matters. $79.95 each volume; $149.95 set. Qualitas Trading Company, 6907 Norfolk Rd., Berkeley, CA 94705. NCP (Apr 87)

LaserFonts are new fonts for the LaserWriter. Users download them to their machines. Very high quality and very simple to use. *Willamette* looks like Avant Garde. *MicroFonts* provides tiny, expanded and condensed versions of the LaserWriter's own fonts. $34.95 to $44.95 each. Century Software, 2483 Hearst, #175, Berkeley, CA 94709. NCP

The Mac Art Dept. is a collection of over 150 graphic images ranging from foods to hands holding signs to borders. Best suited for letterheads, memos, other business use. $39.95. Simon & Schuster, Computer Software Div., 1 Gulf & Western Plaza, New York, NY 10023. NCP (Mar 86)

Mac-a-Mug is an Identikit type program for creating faces from facial feature files. Uses scroll bars that are slow and jerky. Lots of creative fun. 512K+ Mac required. $59.95. Shaherazam, PO Box 26731, Milwaukee, WI 53226. CP (Jul 86)

MacDraft is an object-oriented graphics program. It sports advanced features such as variable scaling, single degree rotation, complex arcs and a FatBits-like magnification mode. Best used to complement *MacDraw,* not replace it. $239. Innovative Data Design, 2280 Bates Ave., Ste. A, Concord, CA 94520. NCP (Feb 86)

MacDraw is an object-oriented structured graphics program. Can be used to design forms, create presentation materials and do technical illustrations. Drawing sizes up to 8 feet by 10 feet are possible. Text can be easily generated and integrated in the graphics. $195. Claris Corp., 440 Clyde Ave., Mountain View, CA 94043. NCP (Nov 85)

MacModel is an economical 3D package with shading. Somewhat sketchy Mac interface, shading speed slow (but acceptable), grainy image resolution. On-line help screens are a welcome addition. Frequent updates and low price make this a reasonably good buy. $40. A.P.P.L.E. CO-OP, 290 SW 43rd St., Renton, WA 98055. NCP (Aug 86)

MacPaint is the graphics program that started a whole new genre. Still the best freehand graphics tool. Version 1.5 supports 512K+ Macs and the LaserWriter. Multiple tools, patterns and features too numerous to describe. A work of art for artists. $125. Claris Corp., 440 Clyde Ave., Mountain View, CA 94043. NCP

Mac3D 2.0 is a feature-laden 3D program with a *MacDraw*-like interface. PostScript-resolution shading with six variable light sources, user-definable tools, and many more features make this a powerhouse. $249. Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. NCP (Jan 87)

MapMaker produces maps and analyses of related geographical data. Additional data disks available. Documentation could be better. Requires 512K; second drive recommended. $295. Select Micro Systems, 40 Triangle Ctr., Yorktown Heights, NY 10598. NCP (Jan 87)

MGMS: Professional CAD for Macintosh offers more than 200 functions. Very complete, capable program. Groups, Dimension, Libraries, etc. are standard. Sometimes confusing — designed for experienced, professional CAD user, not the novice. Full plotter support. 512K+ or Mac XL. $799. Micro CAD/CAM, 3230 Overland Ave., Los Angeles, CA 90034. NCP (Nov 87)

MiniCad V3.0 is a pro level CAD package. Vast array of features, many accessible only through command/shift/option key combinations. Works in 2-D or 3-D with easy transition from one to the other. *MacDraw*-like interface makes it easy to learn and use. Requires 512K+. Diehl Graphsoft, Inc., 8370 Court Ave., Suite 202, Ellicott City, MD 21043. CP (Oct 87)

MockPackage+ is a set of extremely powerful DAs. Includes a text editor, text printer (supports LaserWriter), charter, terminal and EZmenus. HFS compatible. $35. CE Software, 801-73rd St., Des Moines, IA 50312. NCP (Mar 87)

PageMaker uses a graphics studio metaphor to make this layout program a natural for pasteup artists. Version 2.0 adds automatic kerning and hyphenation. Excellent documentation. Could use a global search and replace for design elements. $495. Aldus, 411 First Avenue South, Seattle, WA 98104. NCP (Oct 87)

Phoenix 3D is an economical 3D drawing package, with features that belong in a more expensive program. Multiple light sources, fine object placement and orientation control, and a good selection of shapes. $49.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Oct 86)

PictureBase is a powerful graphic librarian. You can store paint and PICT formatted items and attach keywords for later search and retrieval. $69.95. Symmetry Corp., 761 E. University Dr., Mesa, AZ 85203. NCP (Sep 87)

Portfolio: Designs for Newsletters provides over 20 templates for 2-page newsletters with pre-set columns, headlines, graphics and captions. Documentation provides excellent tutorial in page design. Requires 512K+; *PageMaker.* $79.95. Aldus Corp., 411 First Ave. S., Suite 200, Seattle, WA 98104. NCP (May 87)

The Print Shop makes it easy to create greeting cards, signs, banners and letterheads. Uses its own special graphics and can import *Paint* files. Hard disk users get version 1.02 or higher. $79.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Sep 87)

Quark Xpress is a high end desktop publishing application. Layout is done in block format; powerful lining tool ties blocks together. Copy protection impedes usefulness. $695. Quark, 2525 W. Evans, Denver, CO 80219. CP (Sep 87)

Ragtime is an "Integrated Page Processor" with text, graphics and built-in spreadsheet. Flow text automatically from one frame to another. Spreadsheet has a full set of functions. Excellent, easy to use program. Requires 512K+. $395. Orange Micro, 1400 N. Lakeview, Anaheim, CA 92807. NCP (Apr 87)

Ready, Set, Go! 3 is the newest of the *Ready, Set, Go!* page layout programs. New version offers power word processing and excellent control for text and graphics placement. Slow printing with complex pages. $395. Letraset, USA, 40 Eisenhower Dr., Paramus, NJ 07652. NCP. (Jul 87)

Slide Show Magician 1.3 is useful for creating full screen audio-visual presentations on the Mac. Frame branching, improved editing capabilities, external cassette recorder synchronization and digitized sound capabilities make this much more powerful than the original. $59.95. Magnum, 21115 Devonshire St., Chatsworth, CA 91311. CP (Mar 86)

Space Edit is a 3-D CAD program. Display shows top, front, side and axonometric views of an object, all at once or one at a time. Has standard CAD features plus zoom, exploded view, animated flyover. Suppression of hidden lines is very slow. Requires 512K+. $625. Abvent, 9903 Santa Monica Blvd., Suite 268, Beverly Hills, CA 90212. CP (Jul 87)

Storyboarder produces working animated storyboards for use in film and video production. Imports graphics from *MacPaint;* allows screen masking to simulate television, 35mm or 70mm screen widths; allows limited animation and special effects. $495. American Intelliware, PO Box 6980, Torrance, CA 90504. CP (Nov 86)

SuperPaint is a powerful, easy-to-use graphics program with all the best features of *MacPaint* and *MacDraw* — and then some. Among the new features, LaserBits provides 300 dpi magnification and there are 40 editable brush shapes. Requires 512K+. $149.95. Silicon Beach, 9580 Black Mountain Rd., PO Box 261430, San Diego, CA 92126. NCP (Feb 87)

WetPaint consists of two 3-disk volumes of very high quality clip art. Also includes the *Art Roundup* DA, the best art browser/editor yet. Volume 1 or 2, $39 each; both Volumes, $59. Available in *PictureBase* format for $15 extra per volume. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Sep 87)

World-Class Fonts! comes in two volumes of three disks each. Includes all the *Mac the Knife* fonts and a lot more, including 2 useful

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utilities. This is now the best collection of ImageWriter fonts available. Each volume: $39; both volumes: $59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Dec 86)

COMMUNICATIONS

AppleShare is the long awaited file sharer from Apple. Software-based, ★★★★ *AppleShare* requires you to dedicate a Mac and a hard disk to run it. Allows users on the network to protect things from other users on the folder level. Interface to network is provided at a revised *Finder*. $799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (May 87)

HomePak is a package consisting of *HomeTerm*, an excellent, simple ★★ telecommunications program with strong macro features; *HomeFind*, an electronic filer as bad as *HomeTerm* is good; and Apple's *Edit*, a simple, non-HFS-compatible text-file editor. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Sep 86)

InBox is an easy to use mail system. It's called up from a desk accesso- ★★★★½ ry. Has a very slick interface. Dedicated Mac not required. $350 for starter set which includes one Administrator disk and three Connection disks. Additional Connections cost $125 each. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (May 87)

InTalk comes with its own communications command language able to ★★★★½ do unattended sessions. Supports Xmodem and MacBinary. Has a macro key function. Many sample setup documents and command language files provided. $195. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Prem)

InterMail is an electronic mail system that runs under AppleTalk. Sup- ★★★★½ ports file transfers across the mail system. Full on-line help facility. Also includes "While you were out" messages. Desk accessory based. Prices determined by number of users licensed. One to four users, $299.95; 5 to 10 users, $499.95; 11 to 20 users, $749.95; 21 or more users, $949.95. Interactive Network Technologies, 20 Amy Circle, Waban, MA 02168. NCP (May 87)

MacTerminal provides basic telecommunications and terminal emula- ★★½ tion for the Mac user. Doesn't have macros nor any sort of auto redial/auto logon capability. Best for those needing faithful VT100 or IBM 3278 emulation — it is superb at those. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Prem)

Microphone is a high-powered terminal program that's easy enough for ★★★★½ novices. Very powerful command language allows full automation of communications, if desired. $149. Software Ventures, 2907 Claremont Ave., Berkeley, CA 94705. NCP (Jul 86)

Red Ryder is a full-featured telecommunications program that supports ★★★★★ MacBinary, Xmodem and Kermit. Has big screen support, auto procedure creator, and up to 30 keyboard macros. This is the cream of the crop (in late 87). $80. The Freesoft Company, 150 Hickory Dr., Beaver Falls, PA 15010. NCP (Dec 87)

Smartcom II balances power and ease of use. Capable of unattended ★★★★½ operation and has a very powerful command language. Supports MacBinary, Xmodem and Hayes Verification protocols. The large screen buffer can easily be archived. $149. Hayes, 5923 Peachtree Industrial Blvd., Norcross, GA 30092. NCP (Jul 86)

Telescape is the power telecommunicator's terminal program. Can be ★★★ configured to emulate any terminal. The documentation does not adequately explain the many features. $125. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 86)

TOPS is a file server that is designed to network computers with different ★★★★½ operating systems. The current system will support Macs, MS-DOS compatibles and UNIX. Access to files and subdirectories is transparent to the user; they appear as Mac folders. Only handles ASCII or Text files. $149 for Mac version. $389 for PC's (comes with add-on card). TOPS, 2560 Ninth St., Berkeley, CA 94710. Serial number protected. (May 87)

VersaTerm features include DEC VT100 and VT52, Tektronix 4014 ★★★★½ graphics terminal and Data General DG200 emulation. Sup-

MINIFINDERS

ports Xmodem and *MacTerminal* Xmodem protocols and MacBinary. *VersaTerm* is easy to use and well documented. $99. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. CP (Prem)

VersaTerm-Pro is a very powerful terminal program with several special features. Does one of the best VT100 emulations available and specializes in high-quality Tektronix 4014 and 4105 emulation. A pro's tool. Requires 512K+. $295. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. NCP (Apr 87)

WORD PROCESSORS

Document Compare allows users to compare any two *MacWrite* 4.5, ASCII or MDS documents. Differences in spelling, punctuation, formatting and wording are detected. Documents can be printed out with differences highlighted. $99. Legalware, 33 Young St., Toronto, Canada M5E 1S9. NCP (May 86)

Document Modeler can automate much of a professional office's correspondence. Comes in two parts: *Template Maker* and *Document Maker.* Initial setup requires time and is complex. $299.95. Legalware, 33 Young St., Toronto, Canada M5E 1S9. NCP (Mar 87)

Doug Clapp's Word Tools is a useful punctuation and style editing program. It won't turn you into a Proust, but it will help you make your writing cleaner and clearer. Word counts among different formats show discrepancies, but not to worry. Requires 512K+. Aegis Development, 2125 Pico Blvd., Santa Monica, CA 90405. NCP (Sep 87)

Expressionist is a powerful DA that creates complex mathematical equations from within an application. Equation manipulation has never been easier. $79.95. Allan Bonadio Associates, 1579 Delores St., San Francisco, CA 94110. NCP (Jul 87)

JustText is a professional level word processor and page makeup program that generates PostScript output. Comes with a set of LaserWriter utilities that allow total manipulation of art and text. Requires LaserWriter or other PostScript compatible output device. $195. Knowledge Engineering, GPO Box 2139, New York, NY 10116. NCP (Dec 85)

Kadmos Greek Font is a full character set of ancient Greek that prints on any PostScript printer. Requires learning new typing skills, but excellent quality makes it worth the effort. Allotype Typographics, 1600 Packard Rd., Ann Arbor, MI 48104. NCP (Oct 87)

Laser Author is a high-powered, technically oriented word processor. Good math setting capability. Has style sheets, word count and page layout capability. $199.95. Firebird Licensees, PO Box 49, Ramsey, NJ 07446. NCP (Mar 87)

Liberty Spell Checker is a fast, effective interactive checker. The dictionary is smaller than average, but well chosen. Unfortunately, it has a few misspelled words. $59.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Oct 86)

LookUp is an on-call, quick single word spelling checker. Designed for the way writers really work. Uses the 93,000+ word *Spellswell* dictionary. $49.95. Working Software, 321 Alvarado, Suite H, Monterey, CA. (Dec 87) NCP

MacGAS is a DA spelling checker with both a small and extended dictionary. Its best point is the excellent thesaurus, provides antonyms & glossary. A slow checker. $99. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. CP (Oct 86)

MacProof is a grammar, style and spelling checker that's like having your own personal copy editor. Grammar rules are fixed, and you may not agree with the choices. The program only suggests corrections, it doesn't make them for you. And the checking process can be slow if your document is long. $195 for standalone version; $2500 for networked version. Automated Language Processing Systems, 190 West 800 North, Provo, UT 84604. NCP (Apr 87)

Macspell+ (version 1.10) is a spelling checker that installs as a desk accessory. Works easily with *MacWrite* 4.5 and 2.2 and *Word,* but has some drawbacks. New version just available. Requires 512K+, two drives or hard disk. $99. Creighton Development, 16 Hughes St., Irvine, CA 92718. NCP



Attention Macintosh programmers: Want a hot tip? Get a copy of *Macintosh™ Programming Secrets* by Scott Knaster. In it you'll find hundreds of practical tips, hints and secrets on creating professional quality software for the Macintosh—including the Macintosh II and Macintosh SE. In *Macintosh Programming Secrets,* Scott Knaster, author of the acclaimed *How to Write Macintosh Software,* shares the discoveries of three years spent working with top Macintosh developers as a member of the Apple® Developer Technical Support Staff. You'll learn: the specifics of Macintosh architecture and how to take advantage of its features when programming; how to maintain compatibility between existing and future Macintosh computers; and more. *Macintosh Programming Secrets* from Addison-Wesley. It won't be a secret for long.

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MacWrite is the basic Mac word processor. While it doesn't have every bell and whistle, it is more than adequate for most users. Features include global search and replace, page numbers indicated in the scroll bar and excellent LaserWriter compatibility. $125. Claris Corp., 440 Clyde Ave., Mountain View, CA 94043. NCP

MergeWrite is a mail merge program for *MacWrite* (also works with ASCII files). Program combines names and addresses from a data file into predefined fields in a form letter. Also allows simple conditional IF-THEN-ELSE equations. $49.95. Software Discoveries, 137 Krawski Dr., South Windsor, CT 06074. NCP (Dec 87)

MindWrite is an outliner-based word processor of considerable power. Besides outlining, it allows multiple documents and multiple selections. Excellent if you like to outline your writing first. $295. MindWork Software, 100 Pacific St., Monterey, CA 93940. NCP (Mar 87)

QuickWord is a word processing accessory that adds sophisticated glossaries to *MacWrite*. Simple to install and use, yet powerful and efficient. $49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP

Scriptor is designed for producing standard format scripts. Starts with a *Word* document. As you change your *Word* document, *Scriptor* will reformat, renumber and reprint the script. Supports LaserWriter and daisywheel printers. $295. Screenplay Systems, 348 E. Olive Ave., Suite F, Burbank, CA 91502. NCP (May 87)

Spelling Champion is a fast and accurate batch-type spelling checker. Backup feature allows you to undo corrections in a paragraph. Works only with *MacWrite* 4.5. $39.95. Champion Software, 6617 Gettysburg Dr., Madison, WI 53705. NCP (Oct 86)

Spellswell is an effective and powerful standalone spelling checker. It has many advanced features such as capitalization and homonym checking and comes with a large, well-chosen dictionary. Very good dictionary, good value. $74.95. Working Software, Inc., 321 Alvarado, Ste. H, Monterey, CA 93940. NCP (May 86)

Thunder! is one of the best spelling checkers around. Features Learned Words (a superb glossary) and statistics. A very fast DA, it works interactively and in selection mode. Requires 512K+. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Dec 86)

Word 3.0 is the most feature laden word processor now available. Has a spelling checker, hyphenation, some page layout, style sheets and more. Also has Microsoft's somewhat unusual view of what the Mac interface is. Requires 512K+ and 1200K+ of storage. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Mar 87)

WorksPlus Spell is a speedy spelling and hyphenation checker for *Microsoft Works*. It includes a glossary for abbreviations and time/date stamping. The biggest drawback is its limitation to one program. $59.95. Lundeen & Associates. PO Box 30038, Oakland, CA 94604. NCP (Oct 87)

WriteNow for the Macintosh has many of the features of *MacWrite* and then some, including the ability to work in columns. Has built-in spelling checker with 50,000-word dictionary. $175. T/Maker, 1973 Landings Dr., Mountain View, CA 94043. NCP (Mar 87)

SYSTEM SOFTWARE

HyperCard is a totally unique program for the Mac. It uses an index card metaphor. It contains a programming language, *HyperTalk*. Requires 1 meg. Free with new Macs, otherwise $49.95. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Dec 87)

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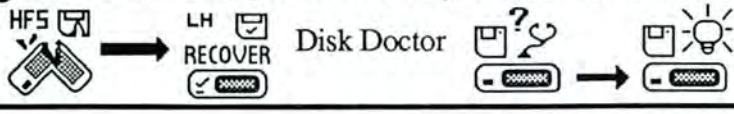
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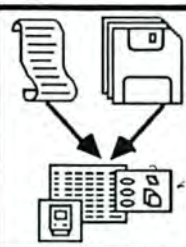


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ORGANIZATIONAL TOOLS

Acta is an outline processor in desk accessory format. It has practically ↕↕↕↕½ all the power of a standalone program, and then some. Can save files as *Acta* outlines, *MacWrite* or text files. $59.95. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (Jul 86)

Calliope is a new type of outlining program. Chunks of information are ↕↕↕ manipulated as small "light bulbs" containing text. Related elements can be graphically connected, and their text information viewed in hierarchical order. Text files can be created for *MacWrite* editing. $99. Innovision, PO Box 1317, Los Altos, CA 94023. NCP (Sep 86)

Comment (previously known as *Memorandum*) is the electronic equiva- ↕↕↕½ lent of Post-It Notes. Notes can be attached to many different types of documents. Doesn't work well with *SuperPaint* or *Microsoft Works*. An alarm clock feature alerts users of Timed Notes. $99.95. Deneba Systems, 14206 SW 136th St., Miami, FL 33186. NCP (Nov 87)

DecisionMap organizes data to facilitate decision making. Unique ↕↕↕ weighting abilities make this a powerful tool. The decision analysis process is long and sometimes complex, but never difficult. $145. SoftStyle, 7192 Kalanianole Hwy., Honolulu, HI 96825. CP

Design is a powerful organizational tool. It goes beyond mere flowchart- ↕↕↕↕ ing. Complex, detailed program aimed at software pros. $250. Meta Software, 150 CambridgePark Dr., Cambridge, MA 02140. NCP (Apr 87)

Guide allows you to "cross reference" from within a document using ↕↕↕↕½ hypertext. You can set up words or sections of the document so that double-clicking brings up explanatory material, graphics and other useful items. The word processing and formatting functions, however, are limited. $135. OWL International, 14218 NE 21st St., Bellevue, WA 98007. NCP (Apr 87)

MacProject allows a user to plan and track a project from beginning to ↕↕↕ end. Uses CPM to produce schedules with start and finish dates for each task. Can report on resource interdependencies and generate all needed printed reports. $195. Claris Corp., 440 Clyde Ave., Mountain View, CA 94043. NCP (Mar 86)

MacSpec is a specification writing tool, a cross between word and ↕↕↕ outline processors. Can automatically number and indent headings, and renumber everything when lines are moved. Text under headings is handled and formatted as though in a simple word processor. HFS-compatible. $199.95. LM Software, PO Box 93, Belmont, CA 94002. NCP (Oct 86)

Micro Planner Plus is a great project management system. Outstand- ↕↕↕↕½ ing analysis capability. Memory based, making it much faster than the original. Includes a font menu. Even saves reports out in *MacDraw* format for further work. Uses standard print drivers. HFS compatible. $495. Micro Planning International, 235 Montgomery St., San Francisco, CA 94104. NCP (Dec 86)

MORE is an incredibly powerful outline processor with gobs of great ↕↕↕↕↕ features: instant charts, math capabilities, multiple windows, font and style control, templates and more. Prints outlines in any of several standard formats, even in color. Requires 512K+. $295. Living Videotext, 117 Easy St., Mountain View, CA 94043. NCP (Jan 87)

PowerPoint is a comprehensive presentation creation tool. Handles ↕↕↕↕ 35mm slide and overhead transparency formats. Good graphics and text editing capabilities. Requires 512K+. $395. Forethought, 250 Sobrante Way, Sunnyvale, CA 94086. NCP (Aug 87)

ThinkTank 512 is a very fast and intuitive organizational tool. Full ↕↕↕ keyboard control is possible. Can store and paste graphics into outlines. Slide show feature allows high-quality presentations to be created. Good report formatting and printing capability. $195. Living Videotext, 117 Easy St., Mountain View, CA 94043. CP (Jan 86)

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note pad with search and phone dialing capabilities. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404 NCP (Dec 85)

Executive Office is a jack of all trades office application. Good data ★★★½ base, word processing, graphics and minispreadsheet. Available on 400 or 800K disks; get the 800 if you can. $249.99. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Mar 87)

Front Desk lets small businesses and offices easily keep track of per- ★★★ sonnel schedules, activities and payments. The program can keep track of up to 15 employees, functioning as a day-, week- and month-at-a-glance calendar. $149.95. Layered, 85 Merrimac St., Boston, MA 02114. NCP (Dec 85)

My Office lets you handle your files and papers in much the same way ★★★★ you did before you got a computer. Excellent use of graphic symbols. $129.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Prem)

Quickset is a set of desk management and organizational tools that can ★★★ be used as desk accessories or applications. Functions include note filer, card filer, calendar, phone dialer, financial and statistical calculators and a file encryptor. $49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP (Dec 85)

SideKick 2.0 beefs up original *SideKick* DAs and adds two major new ★★★★ ones — *MacPlan* (formerly *Click-On Worksheet*) and *Outlook*, a full-featured outliner. Also comes with seven applications to support the desk accessories. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Jun 87)

Smart Alarms is the best reminder system for the Mac. Easy to use, ★★★★½ versatile and, well, smart. This self-running DA automatically reminds you of anything you enter into its Reminder file, giving you a wide range of useful advance warning options. $49.95. Imagine Software, 19 Bolinas Rd., Fairfax, CA 94930. NCP (Oct 86)

Top Desk is a set of 7 self-installing (and self-removing) DAs. Menu Key ★★★★½ adds Command key sequences to programs; View allows looking at and moving data between up to 8 *MacWrite* documents; also included are BackPrint, Touch 'n' Go, Blank, Encrypt and Launch. $59.95. Cortland Computer, PO Box 9916, Berkeley, CA 94709. NCP (May 86)

UTILITIES

Accessory Pak 1 is a set of useful applications and utilities. *Paint Cutter* ★★★★ alone is worth the price. That program allows users to browse and manipulate full page *MacPaint* documents. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Nov 85)

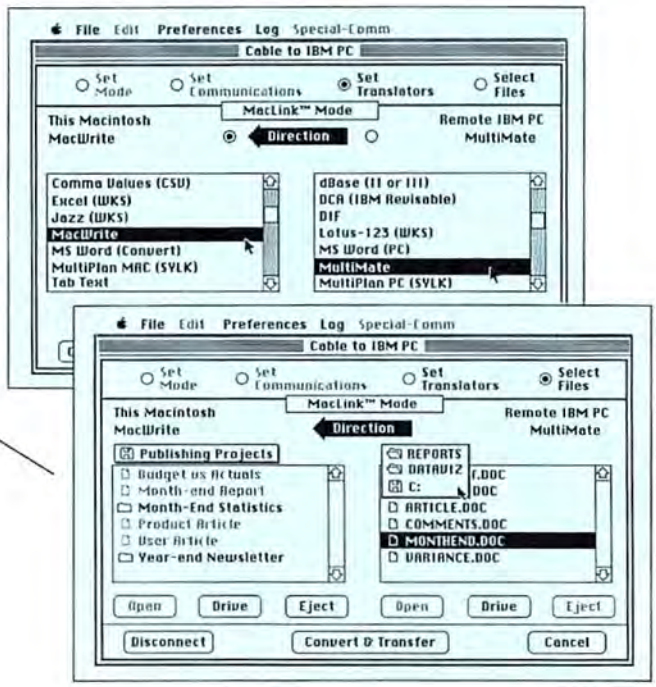
Copy II Mac does efficient sector and bit copies and in its latest version ★★★★★ can back up virtually all Mac software. Features graphic displays of copy progress. Comes with *MacTools*, a multi-use utility that can recover many damaged files. $39.95. Central Point Software, 9700 SW Capitol Hwy., Portland, OR 97219. NCP (Apr 86)

DiskExpress unfragments disk volumes by reorganizing data into con- ★★★★ tinuous sectors and arranging files to slow down further fragmentation. Works with *MacServe*, floppy drives and most hard drives. Requires 512K+. $39.95. ALSoft, Box 927, Spring, TX 77383. NCP (Feb 87)

DiskFit is a utility for backing up and restoring hard disk files. Creates a ★★★★½ "SmartSet" of floppy disks so incremental backups only update files modified since the last backup procedure. Backs up to floppies or another hard disk. Requires 512K+. $74.95. SuperMac Software, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (Jun 87)

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MINIFINDERS



Disk Librarian is an easy to use shareware cataloguing program. Criteria selection option for generating subcatalogs. Requires 512K+. $20. Little Bit, 469 Edgewood Ave., New Haven, CT 06511. NCP (Apr 87)

Disk Ranger is a speedy cataloguing program that doubles as an efficient labelmaker. Comes with pinfeed labels. Works with regular and hard disks. Can catalog HFS systems. $34.95. Graham Software Company, 8609 Ingalls Circle, Arvada, CO 80003. NCP (Mar 86)

DiskTop 2.0 is a desk accessory *Finder* replacement of extraordinary power and ease of use. Comes with the useful *LaserStatus* DA and *Widgets* application. The extras alone are worth the price. Requires 512K+. Upgrade from version 1.0, $7; $10 with new manual. $39.95. CE Software, 801 73rd St., Des Moines, IA 50312. NCP (Aug 87)

Dubl-Click Calculator Construction Set lets users design personalized calculators with a variety of standard and special functions. Finished calculators can be saved as installable desk accessories or as clickable applications. $59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Apr 86)

Fedit Plus is the file and disk editor for everyone, from newest Mac owner to oldest. It can do more for your disks and files than any other application. Can recover deleted MFS files. If you own a Mac, get it. HFS-compatible. $49.95. MacMaster Systems, 108 E. Fremont Ave., #37, Sunnyvale, CA 94087. NCP (Sep 86)

Findswell is an indispensible utility that installs a new button in the Open Dialog box of virtually every Macintosh application. Press the button, type a search string, press Find and *Findswell* searches for any files that match. Click Open or double-click to open the correct file. $49.95. Working Software, 321 Alvarado, Monterey, CA 93940. Requires 512K+. NCP (Nov 87)

FlashBack is a utility to back up HFS hard disks onto floppies. A unique graphic display of the HFS directory facilitates file selection. The program can handle files larger than 800K. $59.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP (Nov 86)

Glue adds a print-to-disk capability to many programs. *ImageSaver* installs as printer driver, *Viewer* allows copying and printing of *Glue* files. Handy utility for desktop publishers. $59.95. Solutions International, Box 989, Montpelier, VT 05602. NCP (Dec 86)

Hard Disk Util uses patch files to allow users to mount and run specified programs on their hard disks. The list of patches is constantly expanding. $89.95. FWB Software, 2040 Polk St., San Francisco, CA 94109. NCP

HFS Backup ranks as one of the preferred hard disk backup utilities. Back up by file/folder or last changes. Backup specifications can be saved as templates. Good graphic interface. Reliable program. $49.95. PCPC, 6204 Benjamin Rd., Tampa, FL 33614. NCP (Dec 86)

HFS Locator Plus is *the* essential HFS desk accessory. It can search for a file by name or date of creation, create folders, move files from one folder to another, set a program to launch while in an application. $39.95. PBI Software, 1163 Triton Dr., Foster City, CA 94404. NCP (Sep 86)

LabView automates the repetitive task of controlling laboratory instruments. Rich icon-based language allows flow chart type programming, but response is slow. Requires 512K+. $1995. National Instruments, 12109 Technology Blvd., Austin, TX 78727. NCP (Aug 87)

LaserServe is a printer spooler for AppleTalk networks. After installation all operations done via a desk accessory. Works with both *MacServe* and *TOPS*. Requires 512K+ and 800K drive or hard disk.

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Inside Out, the first relational database engine for Macintosh™, reaches far beyond your highest expectations. Inside Out brings the power of a 4th generation database language to conventional Pascal or C development systems. Inside Out maintains every bit of information in a database in one Macintosh file. This file can grow as large as 256 gigabytes. Each database consists of up to 128 logical files. Three different types of logical files provide support for virtually any type of data, including variable length data. Database views allow applications to efficiently process related data, while guaranteeing data independence.

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MINIFINDERS



\$95 per node. Infosphere, 4730 SW Macadam Ave., Portland, OR 97201. NCP (Feb 87)

Mac Disk Catalog II is a utility that will quickly organize a moderate size ★★★★ disk library. Easy to use with powerful reporting and label-making features. \$49.95. New Canaan MicroCode, 136 Beech Rd., New Canaan, CT 06840. NCP (Dec 85)

MacFlow is a design tool created for programmers. Traditional flow-★★★½ charting symbols are linked together, and a symbol can be connected to a separate flowchart file. Symbols can't be edited, precluding using *MacFlow* for other applications. \$125. Mainstay, 5211-B Derry Ave., Agoura Hills, CA 91301. NCP (Apr 87)

MacInUse tracks time spent in applications and saves info as text files. ★★★★★ Installs on any disk, works in background. MFS, HFS compatible. Extremely valuable for tax purposes, client records, etc. \$79. SoftView, 4820 Adohr Lane, Camarillo, CA 93010. NCP (Jan 87)

MacLabeler lets users instantly index and print labels for all the disks in ★★★½ a burgeoning collection. Choose border type and orientation of your label; index by folder or document. Starter set of labels is included. \$49.95. Ideaform, PO Box 1540, Fairfield, IA 52556. NCP (Prem)

MacNosy is a global disassembler. A very advanced user can use this ★★★★★ program to look into the code of virtually any program. This advanced tool can take you places no other Mac program could dream of going IF you have the skill to guide it. The documentation is sparse. For pros only. \$90. Jasik Designs, 343 Trenton Way, Menlo Park, CA 94025. NCP

Mac + II lets you run Apple II software on the Mac. Emulation speed is ★★★ only 35 to 45 percent of a real Apple II, so graphics especially suffer. Games also run slow. Runs *AppleWorks* (Apple II integrated software). Good for ex-Apple II owners who have large software collections. \$149.95. Meacom, PO Box 272591, Houston, TX 77277. CP

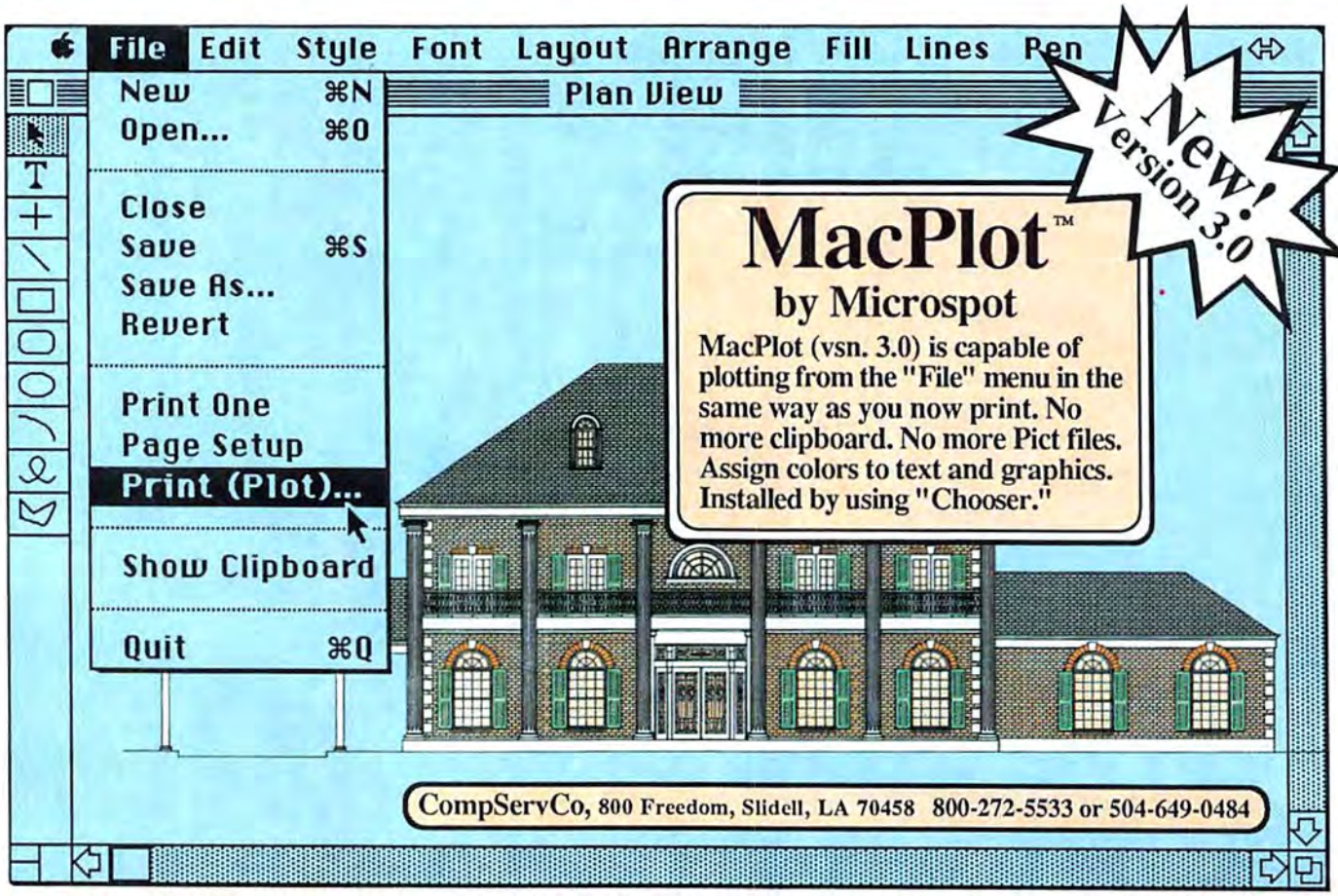
MacSafe is a data file security program that allows you to place multiple ★★★★ files into a "safe," and then you can further protect them through two types of encryption (including DES). Flexible and very easy to use. Allows for installation on hard disk. \$149.95. Kent Marsh Limited, 1200 Post Oak Blvd., Houston, TX 77056. CP (Mar 87)

MacServe converts a Mac and a hard disk into a disk and print server. ★★★★½ Uses the AppleTalk network and is easily hooked up. Users can partition the hard disk into multiple volumes. Runs in the background, so users can work on all machines in the network. \$250. Requires 512+ or Mac XL. Infosphere, 4730 SW Macadam, Portland, OR 97201. CP

MacZap is a three-part disk and memory utility. It can be used to recover ★★★★ some damaged files and disks, compare disks, analyze disk structure and make back-up copies of most disks. \$60. Micro Analyst, 2505 Roxmoor, Austin, TX 78723. NCP (Jan 86)

Menu Fonts displays the names of fonts in the acutal font instead of ★★★ standard Chicago. Won't work with programs that have a non-standard Font menu or no Font menu. Comes with *LockOut*, a utility that gives password access to your Mac, and *FastFormatter*, a utility for formatting multiple blank disks. Requires 512K+. \$15. Beyond Software, 3865 N. Oracle Rd., Tucson, AZ 85705. NCP (Jul 87)

myDiskLabeler is an excellent label maker. It can read directories and ★★★★ use large or small icons or anything desired. Comes with 54 precut labels. \$44.95; with color printing ability (on the ImageWriter II), \$54.95; with PostScript font capability (on the LaserWriter), \$64.95. Williams and Macias, PO Box 19206, Spokane, WA 99219. NCP (Aug 87)



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MINIFINDERS

'Ncryptor is a simple, safe program that lets users password their files. ★★★★ The same program is used for encoding and decoding. This is one of the best products in its category. $39.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP

Packit III is an essential utility. Primarily used to temporarily "glue" files ★★★★½ together, it can also compress and encrypt. Feeware. $10, $10 for printed manual. Harry R. Chesley, 1850 Union St., San Francisco, CA 94123. NCP (Jan 87)

PowerStation is an extremely easy to use, versatile and powerful Finder ★★★★★ substitute. Loaded with power user features. Comes with Pyro! $59.95. Software Supply, 599 N. Mathilda Ave., Suite 210, Sunnyvale, CA 94086. (Dec 87) NCP

Printworks for the Mac is a comprehensive software-based dot-matrix ★★★★ printer control system. Optimizes printing from different applications. Easy to use. Requires 512K+. $75. SoftStyle, 7192 Kalanianaole Hwy., Honolulu, HI 96825. NCP (Aug 87)

Programmer's On-line Companion puts an abridged version of *Inside* ★★★ *Macintosh* in your system for reference. Simply read the text or transfer some or all of it directly into your normal editing window. Non-Macish interface makes the program confusing, somewhat difficult to use. $34.95. Addison-Wesley, Route 128, Reading, MA 01867. NCP (Jul 87)

Quick & Dirty Utilities, Volume One is a disk full of handy programs. ★★★★½ Several desk accessories include a menu bar clock and a terminal. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Nov 85)

RamSnap is a RAMdisk and disk cache in one easy to use package. Can ★★★★ store multiple configurations as files. Good product but a little pricey. $59.95. Dove Computer Corp., 1200 North 23rd St., Wilmington, NC 28405. NCP (Jun 87)

SmartScrap and The Clipper are two useful desk accessory utilities for ★★★★½ graphics work. *SmartScrap* is a major enhancement to the standard Scrapbook DA. *The Clipper* provides you with a transparent Clipboard window, allowing you to resize or crop a graphic to the area that it will be pasted to. $59.95. Solutions International, PO Box 989, Montpelier, VT 05602. NCP (Jul 87)

Stepping Out is a software virtual screen extender. Lets you create a ★★★★½ screen as large as memory allows. 9-inch screen is a "view" to larger screen. Also has reduction features. Amazing. $95. Berkeley System Design, 1708 Shattuck Ave., Berkeley, CA 94709. NCP (Jun 87)

Suitcase is a transparent program that automatically lets you use all ★★★★★ your fonts and DAs. Foolproof and indispensable.Comes with *Pyro!*, the best screen saver. Requires 512K+. $59.95. Software Supply, 599 N. Mathilda, Sunnyvale, CA 94086. NCP (Nov 87)

SuperLaserSpool is a LaserWriter spooler. Very fast because it does ★★★★ conversion to PostScript in the background, but doesn't print a faithful rendition of *PageMaker* documents as a result. $149.95 single user, $395.95 for up to five users on one network. SuperMac Software, 950 N. Rengstorff Ave., Mountain View, CA 94043. NCP (Jun 87)

Switcher is Andy Hertzfeld's contribution to Mac productivity. This pro- ★★★★★ gram lets users run several programs at once (up to 8 on a 1-megabyte or larger machine). Switching between the programs is nearly instantaneous. Requires 512K+. $19.95 from Apple, free from BBSs, included with some third-party applications. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Jun 86)

Tempo is a desk accessory that allows most Mac commands to be ★★★★ intelligently recorded and played back. Capabilities include pausing, conditional branching and macros that work between applications. $99. Affinity Micro Systems, 1050 Walnut St., Boulder, CO 80302. NCP (Jul 86)

TMON is *the* debugger for the Mac. This isn't open to question. *TMON* is ★★★★★ simply the best. Comes with the latest version of Darin Adler's Extended User Area. $100. ICOM Simulations, 626 Wheeling Rd., Wheeling, IL 60090. NCP

Turbo Download is a desk accessory designed specifically to increase ★★★★½ the speed of Xmodem data transfers from national data bases to your Mac. Speed increases range upward from 50% to over

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300% at 2400 baud. $39.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP

Twelve-C Financial Desk Accessory brings all the power and functionality of a Hewlett-Packard 12C programmable calculator to your desktop. Can be programmed and all registers can be viewed while calculator is running. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP

II in a Mac is a graphically oriented Apple II emulator with unique features, such as text and graphics copy from Apple screen to Mac Clipboard. Suffers speed problems associated with "virtual machine" emulation. $69. Micro-W Distributing, 1342B Route 23, Butler, NJ 07405. CP

TypeNow is a desk accessory that allows the Mac and ImageWriter to function as an electronic typewriter. Type can be placed into blanks in complex forms easily. Typing can be recorded and played back. $39.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP (Jan 86)

LANGUAGES

AAIS Prolog is a fast-standard Prolog with excellent debugging and error handling. Good for serious program development. Documentation is not as good as the program. $150. Advanced AI Systems, PO Box 39-0360, Mountain View, CA 94039-0360. NCP (Mar 87)

Aztec C is a C language that will appeal to users with a UNIX background. It uses many UNIX conventions and in the more expensive versions comes with standard UNIX utilities, including the VI editor. $75 beginners, $199 basic system, $299 development system, $499 commercial system. Manx Software Systems, PO Box 55, Shrewsbury, NJ 07701. NCP (May 86)

Basic Compiler is the long awaited compiler for *Microsoft BASIC*. The interface is unfriendly, but it gets the job done. Compiled programs run faster, but you can still tell they are written in BASIC. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (May 87)

ExperCommon Lisp is a LISP development system. Not fully Common LISP compatible, but creates good compiled code and standalone applications. Requires 1M+. $995. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. NCP (Aug 87)

ExperLISP is a useful programming language for high-level programmers. The more you use it, the more you'll figure out about it. $495. Requires 512K+. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

ExperLogo is a version of the popular teaching language, Logo. Features three-dimensional graphics using "bunnies" rather than usual "turtles." Very speedy, smooth program. Comes with an excellent manual. $149.95. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

ExperProlog II is a Prolog based on the new Prolog II standard. Has the ability to handle infinite trees and allows user-defined functions that operate conditionally. Documentation is not the best and Mac interface is nonstandard. $495. ExperTelligence, 559 San Ysidro Blvd., Santa Barbara, CA 33108. NCP (Mar 87)

Lightspeed C provides an integrated environment for developing desk accessories, applications and code resources in C. The editor works with the compiler for searches and file management. Can get awkward if you need something outside the environment. $175. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (Apr 87)

Lightspeed Pascal is a fast, powerful development system for Pascal programming. Fully integrated Mac-like environment. Requires

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MINIFINDERS

512K+. $125. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (Feb 87)

LPA MacProlog is a flexible program that supports several Prolog syntaxes, producing a rich programming environment. However, the program's implementation and documentation are both poor. $295. Programming Logic Systems, 31 Crescent Dr., Milford, CT 06460. NCP (Mar 87)

MacAsm is a software development system that allows programs to be written in assembly language. Programmers can assemble, edit and test software, and an integrated resource compiler lets independent applications run from their own icons. $125. Mainstay, 5311B Derry Rd., Agoura Hills, CA 91301. NCP

Mac C is a good, highly Mac-oriented implementation of this popular development language. Assembler and linker included. $425. Consulair, 140 Campo Dr., Portola Valley, CA 94025. NCP

MacExpress is a development environment or shell. Programmers use it to save time and effort when developing standalone applications for the Mac. $195. ALSoft, PO Box 927, Spring, TX 77383. NCP (Feb 86)

MacForth Plus is an excellent implementation of the popular Forth programming language. New, reduced price, $199. Creative Solutions, 4701 Randolph Rd., Rockville, MD 20852. NCP

Mach II is a multitasking implementation of Forth that allows local variables and text files. Can create standalone applications. Several windows can be up with different operations in each, operating concurrently. Execution is fast. $99.95. Requires 512K. Palo Alto Shipping, PO Box 7430, Menlo Park, CA 94026. NCP (Apr 86)

Macintosh 68000 Development System is a fairly traditional assembly language package. The two-disk set provides an editor (*Edit*), an assembler, a linker, an executive and a resource compiler. $195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

Macintosh Pascal is Apple Computer's version of this very popular programming language. Loaded as it is with innovative teaching features, it is an excellent introduction to Pascal. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. CP

MacScheme is a LISP dialect with "artificial intelligence" capabilities. Has a large appetite for RAM. Interpreted language with Toolbox access limited to a small part of QuickDraw. $125. Semantic Microsystems, 4470 S.W. Hall St., Beaverton, OR 97005. NCP (Jun 86)

MacScheme+Toolsmith is a Mac version of Scheme, a LISP dialect. Beautiful implementation, marred only by relative slowness compared to similar products. Get *Toolsmith.* Requires 1M+. $395. Semantic Microsystems, 4470 S. W. Hall, Beaverton, OR 97005. NCP (Aug 87)

Megamax C is an easy to use, full version of C. Has a compiler, linker, disassembler, editor and much more. Good for beginners. Excellent documentation. $299.95. Megamax, PO Box 851521, Richardson, TX 75085. NCP

Microsoft BASIC was the Mac's first programming language. This interpreter (it's not a compiler) now supports the Toolbox and the whole Mac interface can be implemented in your programs. For nonprogrammers there are lots of programs available to run. $99. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP

MIDIBasic is a library of simple, but highly useful routines for writing MIDI software. Good stuff. Sketchy documentation. Works with both *Microsoft* and *ZBasic.* Requires 512K+ plus Basic. $49.95. Altech Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug 87)

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MINIFINDERS

Object Logo is an object-oriented programming language with access
★★★★ to the Toolbox. Good product, but can't produce standalone applications. Requires 512K+. $79.95. Coral Software, PO Box 307, Cambridge, MA 02142. NCP (Aug 87)

Personal Prolog is an inexpensive and well-documented program. Has
★★★★ no debugging or search and replace facilities, making it a more appropriate tool for learning than development. $64.95. Optimized Systems Software, 1221 B Kentwood Ave., San Jose, CA 95129. NCP (Mar 87)

Prolog/m is a solid Prolog following the Edinburgh standard. Has extensive debugging facilities, but you'll need separate *Toolbox* disk with 58 additional predicates. Drawback: no true editing or printing facilities. $99.95. Chalcedony Software, 5580 La Jolla Blvd., La Jolla, CA 92037. NCP (Mar 87)

QUED (Quality Editor for Developers) is the ultimate source code
★★★★ editor. Loaded with useful and well thought out features, it will make any programmer's life much easier. It is not a word processor, however. $65. Paragon Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar 86)

TML Data Base Toolkit is an ISAM type data base that provides fast
★★★★ and efficient administration of large data files in applications developed with *TML* compiler. Supports multiple open index files. $89.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Dec 86)

TML (MacLanguage Series) Pascal is a good Pascal compiler, capable
★★★★★ of producing standalone programs. Can use most existing Lisa Pascal programs with only slight modification. Requires 512K. $99.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Jun 86)

TML Source Code Library shows how to write programs that use cus-
★★★★½ tom definition routines, speech, serial drivers, split bars and other topics. Provided on three 400K diskettes. Requires *TML Pascal*. $79.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Dec 86)

Visual Interactive Programming is a unique visual programming sys-
★★★★ tem for creating simple Macintosh applications. Programs are constructed in a flowchart-type manner. Easy access to most toolbox routines. Poor printing control. $124.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 87)

ZBasic is a fast, interactive compiler capable of creating standalone
★★★★ applications that take advantage of Mac's unique features and abilities. Includes *Edit*, *RMaker* and *MacInTalk*. Requires 512K. $89.95. Zedcor, 4500 E. Speedway Blvd., Tucson, AZ 85712. NCP (Dec 86)

EDUCATION

Business Simulator is a training tool in a simulation game. Make deci-
★★★★ sions that manage the company through several stages over 25 years. Decisions become more difficult over time. $69.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. Requires 512K+, 2 disk drives (one must be 800K). May be run from a hard disk. NCP (Dec 87)

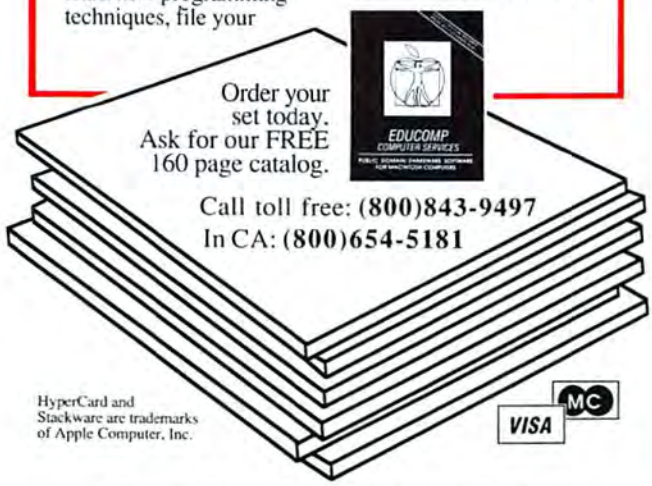
ChipWits is a combination game and teaching tool. Players create
★★★½ programs to maneuver robots through a set of 8 mazes. The programs are written in *ChipWit*'s built-in icon-based programming language (IBOL). $49.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP

Course Builder (version 2.0) creates standalone educational applica-
★★★★ tions. An easy-to-learn dedicated programming language uses blocks and arrows. Graphics, animation and sound can be integrated. Version 2 allows mathematical calculations. Poor documentation. $395, plus $10 shipping. TeleRobotics International, 8410 Oak Ridge Highway, Knoxville, TN 37931. NCP (Oct 87)

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KidsTime is a package of five quality educational programs for children between the ages of 3 and 12. The programs all have adjustable difficulty levels. Some use speech and one is a nice introduction to musical notes. Sparse documentation. $49.95. Great Wave, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Oct 86)

MacEdge and **MacEdge II** each contain 8 reading or math drill programs for basic skills. Programs follow one of three formats, a bit contrived. Contrivances are design flaws. $49.95 each. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP

MacType offers structured typing instruction. Can teach both standard and Dvorak keyboards. Features include certificates for reaching certain levels. Can be used in a multistudent environment. $49.95. Palantir Software, 12777 Jones Rd., Houston, TX 77070. CP

MasterType is proof that learning to type can be fun. In this arcade-style action game words descend from four corners towards the center ship; the user must type them correctly. Features 18 skill levels, tracks errors, recommends lessons and provides comparison scores. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP

ENTERTAINMENT

A Mind Forever Voyaging is a departure in text adventure games. It has a more extensive vocabulary and a more involved story than most of the genre. The story here is gripping, but there are only a few puzzles to solve. Requires 512K+. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Apr 86)

Alter Ego simulates the entire lifetime of a fictional character. The player's reaction to each multiple-choice event shapes the character's future relationships, job, health, etc. Spectacular the first time you play; after that there are too many similarities to previous characters. $59.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Jun 86)

The Ancient Art of War gives users a chance to refight some famous campaigns on both strategic and tactical levels. Campaigns can also be designed from scratch. Very playable, addicting game. Requires 512K+ Mac. $44.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Apr 86)

Archon pits the forces of Light against Dark in a quest to gain control of five Power Points on a checkerboard grid. The shifting cycles of squares' colors keep the balance of power ever-changing. One or two players. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Oct 86)

Balance of Power is the world's first computer peacegame. This simulation allows players to become either the President of the United States or General Secretary of the Soviet Union. Extraordinary artificial intelligence routines and general play make this a classic. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60022. CP (Prem)

Battle Stations is a deceptively simple game based on the pen and paper game of *Battleship*. Requires strategy on several levels. Makes excellent use of Mac sound and graphics. Fun, casual game, especially when the Mac is one of the players. Requires 512K+. $30. Timeline, PO Box 60, Ypsilanti, MI 48197. NCP (Jun 87)

Borrowed Time casts players as detectives who have to solve their own murder — before it happens. This game requires players to think and act like a detective to solve the game. Good sentence parser, sketchy Mac interface. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (May 86)

Bridge 4.0 provides three other players and the cards for a game of rubber bridge. It's an average (Goren) bidder and a less than good card player. Good if it's the only game in town. Plays slowly

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MINIFINDERS



since it's written in BASIC. $29.95. Artworx Software, 150 N. Main St. Fairport, NY 14450. CP (Sep 86)

Bureaucracy is a paranoiac text adventure that dares you to move to a ★★★½ new house and job and still maintain some degree of sanity, not to mention a low blood pressure. Written by Douglas Adams of *Hitchhiker*'s fame. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Aug 87)

The Chessmaster 2000 is a masterful chess program that will appeal ★★★★★ to both novices and master. You can view the board from 2- or 3-D perspective and turn the board for a better look. Play is smooth and easy, and the program responds by voice. You may get tired of hearing "Gotcha," though. $39.95. The Software Toolworks, 13557 Ventura Blvd., Sherman Oaks, CA 91423. CP (Jul 87)

Dark Castle is an outstanding achievement in action games which ★★★★★ integrates RealSound with superb animation and graphics. You'll need better-than-average hand/eye coordination, but it's well worth the effort. Requires 512K+. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Apr 87)

Deja Vu: A Nightmare Comes True is a graphic adventure that breaks ★★★★★ new ground. Innovative use of the Mac interface in truly playable and exciting game. A great introduction to graphic adventure games. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Jan 86)

Dinner at Eight is a useful recipe filing system that includes a collection ★★★★ of recipes from a nationwide sampling of restaurants. Users enter number of diners and program scales recipes. $49.95. Rubicon, 2111 Dickson Dr., Austin, TX 78704. NCP (Jan 86)

Down Hill Racer is an action game with three skier personalities, four ★★★★ courses and four skill levels. There's something here for every player, no matter how bad or good. Full digitized sound (very nice!) requires at least 1M. Requires 512K+. Not XL compatible. $49.95. Miles Computing, 7741 Alabama Ave., Canoga Park, CA 91304. CP (Sep 87)

Enchanted Scepters is a surround sound graphic adventure game. It ★★★★ has a limited vocabulary and virtually no story. Offers extensive and varied scenes and utilizes the Mac interface to the fullest. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. CP (May 86)

Ferrari Grand Prix is an exciting race car simulation game. Mastering it ★★★★ takes quite a bit of time and effort. Startup course and four other courses are built into the program. You can also design your own courses and backgrounds. Requires 512K+. $59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Jul 87)

Flight Simulator puts you at the controls of a small plane (prop or jet) ★★★★ and lets you roam North America. As difficult as real flying. Mac version has features not found on earlier versions, including spotter aircraft. Not all features available on 128K. $49.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Nov 86)

Fokker Triplane is about as near to flying as you can get seated in front ★★★★ of a computer. Very realistic simulation and excellent graphics. Well designed and implemented. $59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Feb 86)

Gato puts players in command of an American submarine in World War ★★★★½ II. This superb simulation game uses all of the Mac's graphic capabilities to really make you feel that "you are there." $49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. CP (Nov 85)

Grand Slam is an absorbing and realistic tennis simulation game. Prac-★★★★ tice or play tournament against Mac-controlled players with dif-

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MINIFINDERS

ferent styles and abilities on four different surfaces. 512K or Mac Plus. $49.95. Infinity Software, 1331 61st St., Emeryville, CA 94608. CP (Nov 86)

HardBall is a baseball simulation game complete with umpire's calls ★★★★ and crowd sounds. Great graphics and a lot of fun for fans. $44.95. Accolade, 20813 Stevens Creek Blvd., Cupertino, CA 95014. CP (Feb 87)

Hollywood Hijinx substitutes a modern Hollywood estate for the fa- ★★★★ mous Underground Empire, but otherwise represents a return to *Zork* gameplay and feel. There's even a maze to navigate. Simplistic, but good. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Jun 87)

Klondike 3.3 is a version of solitaire that uses video game-like scoring ★★★★★ to create a superb, totally addictive game. Simple to play, nearly impossible to stop playing. Shareware: $10. Unison Software, 415 Clyde Ave., Mountain View, CA 94043. NCP (Dec 87)

Leather Goddesses of Phobos is another in the long line of witty and ★★★★★ entertaining Infocom text adventures. This one lets you choose your sex and comes with a 3D comic and a scratch 'n sniff card. It has three levels of play: tame, suggestive and lewd. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Feb 87)

Lode Runner is a 150-screen action-strategy challenge. Move around a ★★★★ grid of ladders and platforms collecting treasure; dig a hole to trap pursuers. Build your own challenges. $39.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP

MacCourses adds four very challenging new courses to *MacGolf*. ★★★½ Courses are swapped on the original *MacGolf* master disk two at a time. Nice add-on for a good game. Requires *MacGolf*. $34.95. Practical Computer Applications, 1305 Jefferson Hwy, Champlin, MN 55316. CP (Apr 87)

MacGolf is a dynamic simulation of real golf. Players have a choice of ★★★★½ courses and difficulty levels. Superb playability makes this a must for all golfers and gamers. Requires 512K+. $59.95. Practical Computer Applications, 1305 Jefferson Hwy., Champlin, MN 55316. CP (May 86)

MacMan is a two-part package. The software portion is a decent *Pac-* ★★★★★ *Man*-like game. The hardware part is a tiny converter that lets you use a joystick with a Mac or Mac Plus. $39.95. Nuvo Systems, 225 Tank Farm Rd., San Luis Obispo, CA 93401. CP (Aug 87)

Mac Pro Football is a terrific sports simulation that gives you the ★★★★ chance to pit any combination of 38 Super Bowl teams against each other and direct team play. It comes with excellent, detailed (and necessary) documentation. Play selection can get a bit Byzantine. $49.95. Avalon Hill, 4517 Harford Rd., Baltimore, MD 21214. CP (Mar 87)

MacRacquetball uses digitized videos and sounds of professional play- ★★★½ ers for a realistic simulation. Has lots of control settings and can be played against someone else over a modem or between hard-wired Macs. Turn off hard disks before playing. $59.95. Practical Computer Applications, 1305 Jefferson Hwy., Champlin, MN 55316. CP (Oct 87)

Make Millions is a fascinating business simulation in which the player ★★★★★ competes against the computer to take control of five companies, then run them profitably. Appeals to the closet capitalist in all of us. $49.95. Scarborough Systems/Mindscape, 3444 Dundee, Northbrook, IL 60062. CP

Maze Survival challenges players to destroy maze walls before roving ★★½ bugs squash themselves against it. Bugs lay eggs to spawn a new generation. Repetitive. $34.95. Olduvai Software, 830 NE Pop Tilton's Pl., Jensen Beach, FL 33457. NCP (Aug 87)

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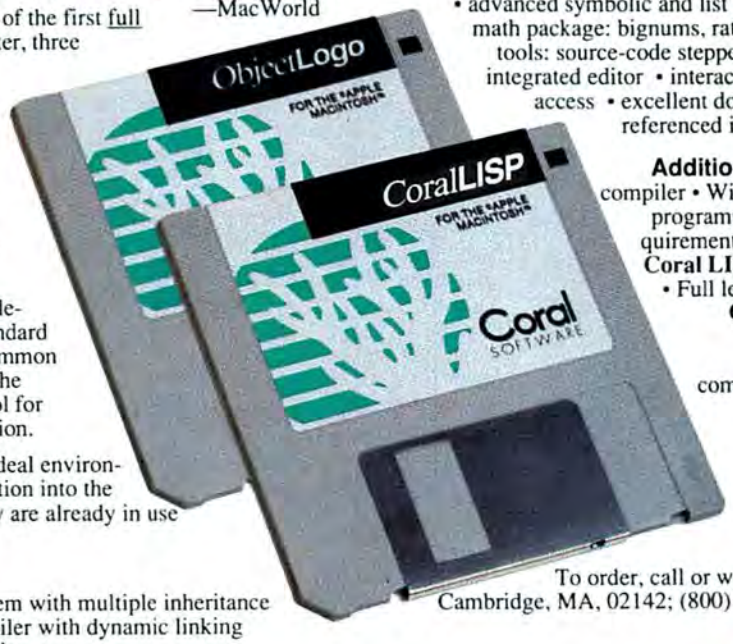
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MazeWars+ is an interactive, multiplayer game to be played on Apple-
★★★★ Talk or through a modem link. Chase opponents through a four level maze. Requires 512K+, AppleTalk or Hayes compatible modem. $49.95. MacroMind, 1029 W. Wolfram, Chicago, IL 60657. NCP (Nov 86)

MicEdGames is a collection of five educational games, MicAlphabetize,
★½ MicTime, MicStates, MicMatch and MicSpell, supposedly for ages 5 to adult. Games are sometimes cute but generally poorly designed. Manual is poorly written. Some entertainment value. $19.95. MicEdWare, 4265 Midland Rd., Saginaw, MI, 48603. NCP (Dec 87)

Mind Over Mac features five games. Entertainment for the whole family.
★★★★ Good graphics paired with synthesized sound and on-screen help. $49.95. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP (Feb 86)

MoonMist is an introductory level text adventure game. This is a typical
★★★ haunted English castle story, not quite up to Infocom's best. It has four versions, so it's good for more then one play. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (May 87)

NewGammon is animated backgammon that will challenge even good
★★★★ players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. An arcade-like high speed mode is included. $39.95. Newsoft, PO Box 3046, Newport Beach, CA 92663. CP

NFL Challenge simulates coaching and watching professional football.
★★★½ Comes on two disks, one with program and system, the other statistical data. Play against either human or computer coaching. Plays are selected from pre-defined playbooks. $99.95. XOR Corp., 5421 Opportunity Ct., Minnetonka, MN 55343. NCP (Jun 87)

Ogre is a strategy tank game played on a hexagon grid. The ogre is an
★★★★ intelligent cybertank out to smash your command post. Customize your defense. Exceptionally good Mac interface. Has two-player option. $30. Origin Systems, 136 Harvey Rd., Building B, Londonderry, NH 03053. CP (Nov 87)

Orbiter puts a real space shuttle on the Mac screen. A multitude of
★★★★½ controls, intelligent on-board computer with speech capabilities, real-time graphics and 16 distinct missions help this program succeed as both a game and a simulation. $49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. NCP (Jul 86)

Orbquest is a fantasy role-playing aoventure with better-than-average
★★★½ puzzles and an excellent sense of humor. Not as sophisticated as some, but a good value. $49.95. QWare, PO Box 850415, Richardson, TX 75085. CP (Dec 86)

Patton vs. Rommel is traditional-style strategic war game. It covers
★★★★ events in Normandy in 1944. While complex, it's well designed and very playable. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Apr 87)

The Pawn is an unusual British interactive adventure game with text and
★★★½ graphics. The unique interface has some drawbacks, but *The Pawn* has humor, social satire, is entertaining and is challenging. $44.95. Requires 512K+. Firebird, PO Box 49, Ramsey, NJ 07446. CP (Mar 87)

Pinball Construction Set lets users create their own pinball games, as
★★★★ elaborate or as easy as desired. Uses *MacPaint* for backgrounds and has lifelike sounds (on 512K+ Macs). $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jan 86)

Portal is an intriguing science fiction novel for kids that suffers from
★★★ having a poor interface. Storyline: all of humanity is missing and you have to search through a data base for files that reveal the

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mystery. Nothing in the way of role-playing, and the Mac version is slow and buggy. $49.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Oct 87)

Puppy Love is a combined game and teaching tool. As you teach your ★★★★½ puppy tricks and routines, you learn the basics of programming logic. Great fun for all ages. Does not run from a hard disk. $29.95. Addison-Wesley, Route 128, Reading, MA 01867. CP (Mar 87)

Real Poker is five-card draw against five other players with Old West ★★★★½ names, distinct personalities and playing styles, in a saloon setting. Dealing and play are very fast. Game evaluates your hand. $39.95. Henderson Associates, 980 Henderson Ave., Sunnyvale, CA 94086. CP

Seven Cities of Gold is an educational program masquerading as an ★★★★ adventure game; and is practically unique in being equally good in both respects. You are to land (not the easiest part) in the New World and attempt to placate the natives, seed a few missions and collect gold. Nice work if you can get it. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jun 87)

Shadowgate is an icon-based graphic adventure. You, as the seed of ★★★★½ prophecy, must save the world from the evil warlock. Far surpasses all others with great animated graphics, sound and adventure. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Dec 87)

Shanghai challenges players to clear a board of all 144 tiles, by match- ★★★★★ ing pairs of mah-jongg tiles and removing them. Terrific strategic options plus the ability to randomly generate new game boards keep this one fresh. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Nov 86)

Skyfox is a sophisticated 3D shoot-em-up. You're fighting tanks, ★★★ planes and enemy cities floating in the sky. Fast graphics, good sound, slick, on-board attack computer and many levels of difficulty will keep fans of this genre happy for hours. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Oct 86)

Smash Hit Racquetball is an accurate and entertaining simulation of a ★★★★½ day on the courts. Digitized sound adds to the realism. Includes a hard disk install, unusual for a game. The low price makes this the perfect Mac gift. $19.95. Primera Software, 650 Cragmont Ave., Berkeley, CA 94707. CP (Dec 86)

Snake-Bar lets you guide a snake (or train or semi) through a maze ★★★★ picking up objects that feed and make your snake grow. Options include changing languages, editing the maze, and an X-rated game. $15. (shareware). Georges Malamound, 37 Bis rue des Abbesses, Montmartre, 75018 Paris, France. NCP (Dec 87)

Space Quest is a three-dimensional, animated adventure in which you ★★★★ play a janitor in a dicey situation. All you have to do is get off your ship before it explodes and save the Earnon System. Runs on any Mac. $49.95. Sierra On-Line, PO Box 485, Coarsegold, CA 93614. CP (Sep 87)

Stationfall is the sequel (finally) to Infocom's excellent *Planetfall* text ★★★★½ adventure. Reunited with Floyd and sent to pick up requisition forms, you must solve the empty space station problem. As straightforward as other Infocom games; more so than some. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Nov 87)

Strategic Conquest is a large scale, strategic conflict on the Mac. This ★★★★ very involved war game will be enjoyed by those who like this genre. $59.95. PBI Software, 1163 Triton Dr., Foster City, CA 94404. CP (Dec 85)

Tass Times in Tone Town is a slightly off-the-wall graphic adventure in ★★★½ which you need a flashy hairdo and a jumpsuit before you can get anywhere, and you pay for things with guitar picks. Decent

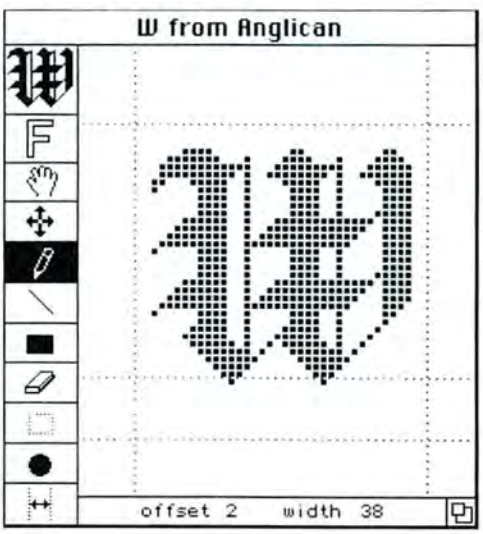
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puzzles, with a sense of humor. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Jan 87)

The Toy Shop is a construction kit for building 20 different working ★★★★ model toys. Some parts can be customized. Manual gives clear instructions, but many toys are too complex for a child. $49.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Nov 86)

Ultima III allows up to four characters to cooperate to explore the vast ★★★★½ wilderness of Sosaria. $59.95. Origin Systems, 340 Harvey Rd., Manchester, NH 03103. CP

Uninvited is an icon-based adventure game set in an extremely haunt- ★★★★★ ed mansion. Since you access the parser by double-clicking, command choices are always visible — you don't waste time trying to figure out which words the program understands. It has animation and sound. $49.95. Mindscape, 3444 Dundee, Northbrook, IL 60062. CP (Sep 86)

Winter Games lets up to eight players compete against each other in ★★★★ Olympic events including figure skating, bobsledding, biathlon and ski-jumping. Excellent animation, good graphics, good theme music. $39.95. Epyx, 600 Galveston Dr., PO Box 8020, Redwood City, CA 94063. CP (Mar 86)

Wizardry is an outstanding dungeon exploration adventure pitting a ★★★★★ party of up to six characters against the guardian monsters of the evil wizard Werdna. Capture his amulet to earn your reward. Even after solving the game, you'll want to go back into the dungeon. $59.95. Sir-Tech, 6 Main St., Ogdensburg, NY 13669. CP

WordPlay is a word game with over 50 crossword puzzles for different ★★★★ levels of expertise. User friendly, it offers on-screen Help menus. Allows development of new puzzles for the creative. $49.95. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Mar 86)

World Builder is an adventure game construction set with what ★★★★½ amounts to its own programming language. The whole program (language including) is easy to learn and produces commercial quality games. No support for the programming language, though. $79.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Apr 87)

Xyphus is a role-playing game pitting four characters (fighters or wiz- ★★★★ ards) against multiple scenarios that grow increasingly harder. Excellent Mac interface and icon control. $39.95. Penguin, PO Box 311, Geneva, IL 60134. CP

Your Personal Poet creates personalized greeting cards on the Mac. ★★★½ Comes complete with four greeting cards and matching envelopes. Does not run when connected to a LaserWriter. Requires 512K+. $29.95. Computer Poet Corp., PO Box 7707, Incline, NV 89450. NCP (Jun 87)

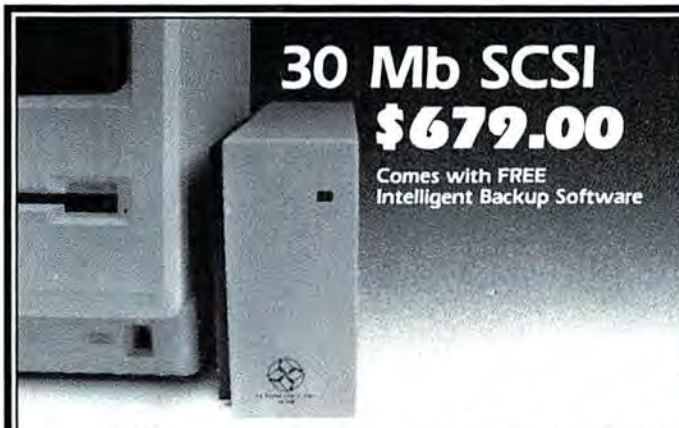
Zork II is where the adventure continues in the underground empire. A ★★★★½ wandering wizard keeps things interesting, though there's a way to beat him if you persevere. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP

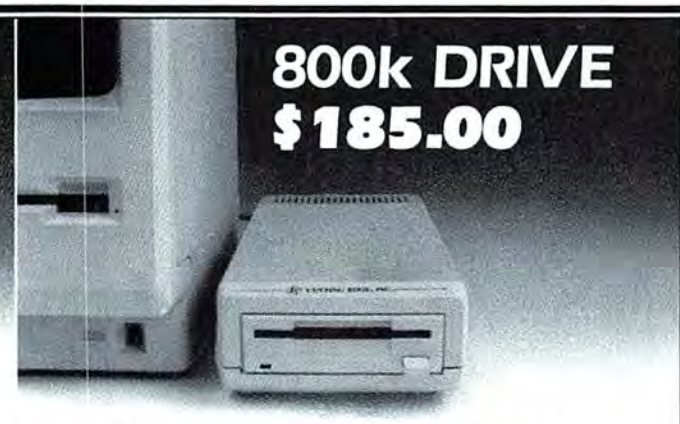
Zork III is the final chapter in the trilogy. Players come up against the ★★★ ultimate enemy — the Dungeonmaster himself. More closed-ended than previous *Zorks*. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP

MUSIC

ConcertWare+ is an enhanced version of *ConcertWare*. Has different ★★ instruments and can use any four of a set of eight at any point in a piece. Can read and use *ConcertWare* and *MusicWorks* files. $69.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Nov 85)

ConcertWare+MIDI is a composition and transcription program that ★★★★ can record multiple notes from a MIDI keyboard. Easy to use if you read music. Handles 8 tracks of 8 voices each. Requires





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512K+. Version 4.0. $149.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 87)

Jam Factory is a program for manipulating MIDI data in real time. Absolutely impossible to figure out without a thorough reading of the manual and lots of practice. Requires 512K+, MIDI interface and MIDI synthesizer. $189. Intelligent Computer Music Systems, PO Box 8748, Albany, NY 12208. CP (Oct 87)

Listen is an educational tool for ear training. It has both a piano keyboard and a guitar fretboard for the student to input notes, and offers a wide range of exercises. $69. Imaja, PO Box 638, Middletown, CT 06457. CP (Jan 87)

M is a music composition and creation program that works with MIDI data in real time. Unique, entertaining and very powerful, but requires lots of patience and practice. Requires 512K+, MIDI interface and MIDI synthesizer. $219. Intelligent Computer Music Systems, PO Box 8748, Albany, NY 12208. CP (Oct 87)

Master Tracks Pro is a full-featured, second-generation MIDI sequencer that adheres to the Mac interface very well. It's the first program to have a graphic controller. Needs patch chasing for professional use, but it's still a rock-solid program. $350. Passport Designs, 625 Miramontes St., #103, Half Moon Bay, CA 94019. CP (Dec 87)

MIDIBasic is a simple, but highly useful routine for writing MIDI software. Good stuff. Sketchy documentation. Works with both *Microsoft* and *ZBasic*. Requires 512K+ plus Basic. $49.95. Altech Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug 87)

Music Mouse is a music program in a genre all its own. Called an "intelligent instrument," *Music Mouse* gives you instant musical feedback as you move the mouse and type on the keyboard, which controls tempo, vibrato, volume, etc. $59.95. OpCode Systems, 444 Ramona St., Palo Alto, CA 94301. NCP (May 87)

Performer is a strong contender for the high-end of the MIDI sequencer market. Only those experienced with MIDI should get this. Files can be transported to *Professional Composer* for editing. No direct track or segment looping. $295. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP

Practica Musica uses an interactive, game and practice approach to teach music theory and ear training. Excellent training tool for the serious music student, it is also fun for anyone who wants to develop a trained ear for intervals, chords and melodies. Requires 512K. $125. Periscope Press, PO Box 6926, Santa Barbara, CA 93160. NCP (Nov 87)

Professional Composer is aimed at music professionals. Produces performance-quality sheet music; has only limited playback facilities. $495. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP (Prem)

Studio Session consists of two programs, an Editor and a Player, that produce music with six voices of digitized sound. Excellent program plus good manual make this a good buy. $89.95. Impulse, 6870 Shingle Creek Pkwy., Minneapolis, MN 55430. CP (Dec 86)

HARDWARE & ACCESSORIES

AST TurboScan is a 300 dpi scanner with sophisticated graphics software. Scans at resolutions from 72 to 300 dpi. *SuperScan* software offers halftone, line art and mixed modes. "Virtual memory processing" lets you scan images too large to fit in RAM. $1899. AST Research, 2121 Alton Ave., Irvine, CA 92714. Requires 512K+. *SuperScan* software included. NCP (Nov 87)

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Holds 140 M. Help, file transfer and tape backup commands built in. *Hard Disk Partition* is a useful DA that comes with a 6 ft. SCSI cable. $2995. CMS Enhancements, 1372 Valencia Ave., Tustin, CA 92680. (Jul 87)

DASCH is an external RAMdisk available in half, 1 and 2M sizes. Con- ★★★ nects to a serial port. Speeds up operations 200 to 300%. Can be used as a printer buffer. Works with all Macs. 512K, $395; 1M, $450; 2M, $545. Western Automation Laboratories, PO Box 3438, Boulder, CO 80307. (Feb 87)

Data Frame 40XP is a very fast, very quiet 40-meg external SCSI hard ★★★★ drive. Comes with a good and complete set of utility software. About as fast as a SCSI drive can be. Requires SCSI port, 512K+, new ROM. $1899. SuperMac Technology, 295 N. Bernardo Ave., Mountain View, CA 94043.

FX-20 is a good 20-meg external hard drive. Good utility software. ★★★★ Reliable, and reasonably quiet. Sits next to Mac, has a large, oddly shaped case. Requires SCSI port, 512K+, new ROM. $1199. General Computer, 215 First St., Cambridge, MA 02142. (Feb 87)

Hard Disk 20SC is Apple's 20-meg SCSI hard disk. Reliable, fairly noisy ★★★★ unit. Good utility software, but no backup yet. Requires cable and terminator ($80). Requires SCSI port, 512K+, new ROM. $1299. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Feb 87)

MacBottom 45 SCSI and Internal Modem has a modem that fits into ★★★★½ the top half of the 45-megabyte SCSI hard drive case. Comes with *HFS Backup* and *Eureka*. Does not work with a Mac II. $1795. Personal Computer Peripherals, 6204 Benjamin Rd., Tampa, FL 33634. (Oct 87)

MacBottom HD21 is a very low (about 2 inches high), external 20-meg ★★★★★ hard drive. Fits under the Mac. Very quiet, very reliable. Good utility software, including *HFS Backup*. Requires SCSI port, 512K+, new ROM. $1195. PCPC, 6204 Benjamin Rd., Tampa, FL 33614. (Feb 87)

MacCharlie's components slip around the Mac and convert it into an ★★★★ IBM PC clone. Amazingly, it works well. The enlarged keyboard has a few bugs but is a joy to use. $995. Dayna Communications, 50 S. Main St., Salt Lake City, UT 84144. (Dec 85)

Macintizer is a graphics tablet and absolute positioning device that ★★★★ replaces the mouse. Various scales are possible. $599. GTCO Corp., 7125 Riverwood Dr., Columbia, MD 21046.

MacNifty Sound Digitizer turns ordinary analog sound input into digital ★★★★½ waveforms which can then be manipulated using the *SoundCap* software it comes with. Capable of truly stunning effects. Requires 512K+. $129.95. Impulse, 6870 Shingle Creek Pkwy., Minneapolis, MN 55430.

MacSnap Plus 2 is a 2M memory upgrade for the Mac Plus. The board ★★★★ has 256 kilobit chips. User installable. Not compatible with existing big screens or internal hard disks, and can't be expanded further. $399. Dove Computer, 1200 North 23rd St., Wilmington, NC 28405. (Jun 87)

MacTablet is a stylus-driven graphics tablet. Users can easily sketch or ★★★★ trace art using this absolute-positioning device. Has a working area the size of the Mac screen. Allows concurrent use of the mouse. $495. Summagraphics Corp., 777 State St. Extension, Fairfield, CT 06430. (Jan 86)

MacTilt/MacTilt SE is a Mac (and external drive) holder that allows a ★★★★ full range of swiveling and tilting. Very strong, this well made unit is also very easy to use. $99.95. Ergotron, PO Box 17013, Minneapolis, MN 55418.

MacVision is a digitizer that uses an ordinary video camera for input. ★★★★ Capable of extremely fine results and special effects. Easy to

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use and well documented. $349.95. Koala, 269 Mt. Hermon Rd., Scotts Valley, CA 95066.

Magic Digitizer is a hardware digitizer that works with video cameras. ★★★★ With *LaserMagic* software you can generate 300 dpi images (in PostScript). Requires 512K+. Digitizer with *Magic* software, $399.95; *LaserMagic* software, $49.95. New Image Technology, 10300 Greenbelt Rd., Seabrook, MD 20706. NCP (May 87)

Microtek MSF-300C is a 300-dpi flatbed scanner. Really fast when ★★★½ used with optional MS-SCSI/C adapter. Comes with VersaScan Plus software (NCP) to scan and manipulate image. Saves images in a number of formats including TIFF and *MacPaint*. $1895. Microtek Lab, 16901 S. Western Ave., Gardena, CA 90247. (Dec 87)

Migent Pocket Modem is a 300/1200 baud portable modem about ★★★½ the size of a 3 x 5 index card. Comes bundled with *MacTerm* 2.0, Borland's telecom DA. Manual is confusing, and tech support is minimal. $259. Migent, 865 Tahoe Blvd., Incline Village, NV 89450-6062. (Nov 87)

Mouse Mover is a mouse pad-type surface that snaps onto the bottom ★★★★½ of the mouse like a roller skate, freeing it up to glide over desk or mouse pad with ease. 99 tiny ball bearings at three strategic points. Mouse glides faster and saves on mouse wear and tear. $19.95. Magnum Software, 21115 Devonshire St., Chatsworth, CA 91311.

Moustrak is a fabric covered foam mousing pad. It will increase the ★★★★ efficiency of your mouse while helping to keep it clean. Pad comes in a variety of colors. Particularly useful in the typical office desktop environment. $10. Moustrak, 3047 St. Helena Hwy., St. Helena, CA 94574.

NoLabelSystem is a plastic permanent labeling system in which users ★★★★ slide new tabs into a transparent plastic case on the disk. The tabs stick out of the case slightly, making them easier to read while in the drive. $19.45. Weber & Sons, 3468 Hwy. 9, Freehold, NJ 07728.

One Plus One is a user-installable memory upgrade for a Mac Plus. Adds ★★★★½ 1 megabyte of RAM to the 1M already there. Simple one-evening project. Includes MacBreeze, an excellent small fan. Requires Mac Plus. $395. Levco, 6160 Lusk Blvd., San Diego, CA 92121. (Aug 87)

PhoneNET is an AppleTalk-compatible network. Network can be up to ★★★★★ 3000-ft in length. In-place, unused phone cabling can be used for network, and can be combined with AppleTalk on same network. $49 per node. Farallon Computing, 2150 Kittredge St., Berkeley, CA 94704. (Dec 86)

SuperRam 2 and SuperRam 4 are 2- and 4-megabyte RAM upgrades. ★★★½ Should be dealer installed but can be (carefully) user installed. SuperRam 2 includes RAM adaptor module, 1-meg memory module, modified power cable, jumper and fan. SuperRam 4 adds power supply booster and two 1-meg memory modules. Not compatible with most big screens. $499. SuperMac Technology, 295 N. Bernardo, Mountain View, CA 94043. (Oct 87)

ThunderScan replaces the ribbon cartridge in an ImageWriter, which is ★★★★ required to use it. Laser scans art that can be run through the ImageWriter, producing high-quality digitized images. The images can be manipulated as they are created or afterward. $249. Thunderware, 21 Orinda Way, Orinda, CA 94563.

TimeWand is a bar-code reader with a built-in time/date stamping ★★★★ clock. Can be used with *TimeWand Mangaer* software, a data base that's extensive though difficult to use. Poor docs, but good support. Requires 512K+. *TimeWand* 2K version, $198; *TimeWand Manager*, $489. Videx, 1105 NE Circle Blvd., Corvallis, OR 97330-4285. (Dec 87)

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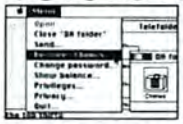
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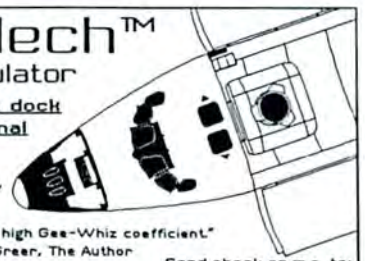
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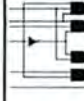
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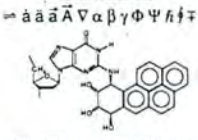
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by John C. Dvorak

Hotter Than Hot

Two young ding-a-ling hostesses were overheard at the Boston Mac World Expo last August.

"Like, I mean, do these guys like wear suits all the time? Like in bed, you know? It's like Death Valley in here and like where's the pool?" said one.

"For sure," said the other. They then went off to brush their hair having summed up the show.

This trade show was one of the worst I've ever attended. On the first day the air conditioning in the newish Bay Expo Center failed. Like, for sure, this is in Boston, in like the summer, you dig? The threads from my white linen sports coat dissolved from sweat corrosion and I had to use safety pins to keep it from falling apart. By the time I had returned to the hotel the pins had rusted leaving me with a dry cleaning nightmare.

This trade show was one of the worst I've ever attended.

At one point in the day, some security guards had measured a 104-degree temperature in a section of the hall and threatened to close down one wing where it was unbearable. An announcement was made late in the day that they had found the problem and it would be corrected tomorrow. The next morning the showgoers found their way back to a morning deep freeze that quickly degenerated back into hot and humid as the ridiculously inadequate facility (even though new) groaned under the cooling requirements.

Of course, you only experienced this if you could manage to get to the place. The cabs in Boston were a laugh riot. Compare 1500 cabs in Boston to the 15,000 in Manhattan and you discover that the town can't handle a crowd. I waited a half hour at the airport for a cab. The lines at the hotels were ridiculous. I ended up taking the subway (the "famed" Boston T) to and from the show and walking a mile. The drawback to this is you had to endure a train car full of Bostonians who sweat too much in the hot cars and smell like a pack of wet dogs. This is not the right town for an event like this. It's a laugh.

The show management was a laugh, too. Check this out. They had a press room with phones on which you couldn't get an outside line to make a long distance call unless you used MCI. "I need to make a long distance call. Can't I use my AT&T calling card?" "No." This idiocy irked all the news people who were grumbling for days about it. Meanwhile, the only other phones available were a couple of paltry banks of pay phones that had a waiting line a mile long. Only a few show booths had phones and after the first day you couldn't call out on them.

The SuperMac people offered to outfit the press room with some hot big screen systems with modems for the press to bang away on. The show moguls thought it wasn't a good idea and, instead, let Apple provide two crummy little Macs which some kids hogged all day playing games. My advice to show promoter Mitch Hall and Associates: Get your act together or get a real job!

The show itself was fun. Fun if you like a showcase for unreleased products. I counted 45,678 of them. Most of the buzz, though, came from Apple itself and its hype of *HyperCard*. John Sculley called it the greatest announcement from the company since the Mac itself. Huh? Who is he kidding? At first I seemed to be the only skeptic. Sorry I don't see the big deal. Whatever the case, I was in the minority. Here are some examples of what people said over and over and over:

"It's neat and it's free." "It allows you to see data in a whole new way." "Millions will be made on stackware." "It's great. It will change the way people see and use computers." "The programming language will let anyone write a stackware application effortlessly."

This kind of thing was said while the bug-eyed people expounding this drivel waved their arms and drooled and spit out the words spraying the poor listener with saliva. They then ran off to spray another hapless soul. It wasn't as though we weren't already wet enough from the steam bath atmosphere at the Bay Expo Center.

So I played with this product over and over and over. I accidentally dumped a can of paint (from the built-in and unnecessary paint program) onto the Help screen and blacked out the whole thing and had to click mindlessly all over the screen in an almost futile attempt to find the now hidden "button" to get off the screen, er, card and on to the next.

With buttons and hotspots all over these cards I found it annoying to have to move and click all over the place like a fiend.

But there is an inherent and bigger problem not discussed. The psychology of the hypertext concept on which *HyperCard* is based is wrong. Most hypertext/hypercard implementations have an inherent nastiness about them that I think galls the public. When you have a large data file filled with subtext and subcards and whatever stacked 50 deep and going every which way, the user loses control of the environment. There's a feeling that something is hidden or missed on some screen somewhere. Something that is very important, perhaps crucial. This nagging feeling about the hidden screen buried under something somewhere makes hypertext or *HyperCard* unusable for me.

It becomes too much of an adventure game where you try to find the hidden "bonus" room. I don't like the idea. I like my information spread out in a structured, understandable and easily accessible way. Can you imagine a great library such as the Library of Congress structured like *HyperCard*? Think about it. You'd never find anything.

I wish those budding stackware developers a ton of luck. They'll need it.



ROBERT ZIMMERMAN

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